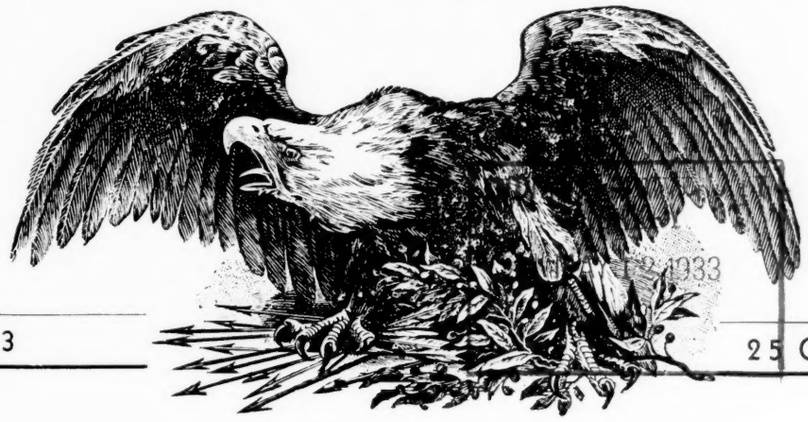
Manufacturers Record

Reg. U. S. Patent Office



MAY 1933

25 CENTS A COPY

NEW PATHS

Whatever may be the opinion of the correctness of the course taken by the Executive and Legislative branches of the Government in the past few weeks, the destiny of American business and the welfare of the American people are now in the hands of President Roosevelt.

Bold plans have been launched and naturally are viewed with alarm by those who cannot at once abandon old traditions. Forces have been set in motion that will have a far-reaching effect upon present and future generations. With candor and evident sincerity the President has told us that some of these plans are "experiments" and we have his assurance that should they be unworkable he will be the first to recall them. Action has been urged upon him in the battle of the depression, and to his everlasting credit he has gotten action at a time when the whole nation was groping in economic despair.

We are hurrying along paths we haven't previously ventured on, but we have been for three and a half years in the whirl of a descending spiral that has had a terrifying effect. Nothing like it or comparable with it has been known before. Economists and men of business are willing to experiment in the hope of bringing improvement that will employ the idle (they have been idle or on part time so long) and produce the means to pay debt.

After all, these are the major problems and confidence will never be restored until they are in the way of being solved.

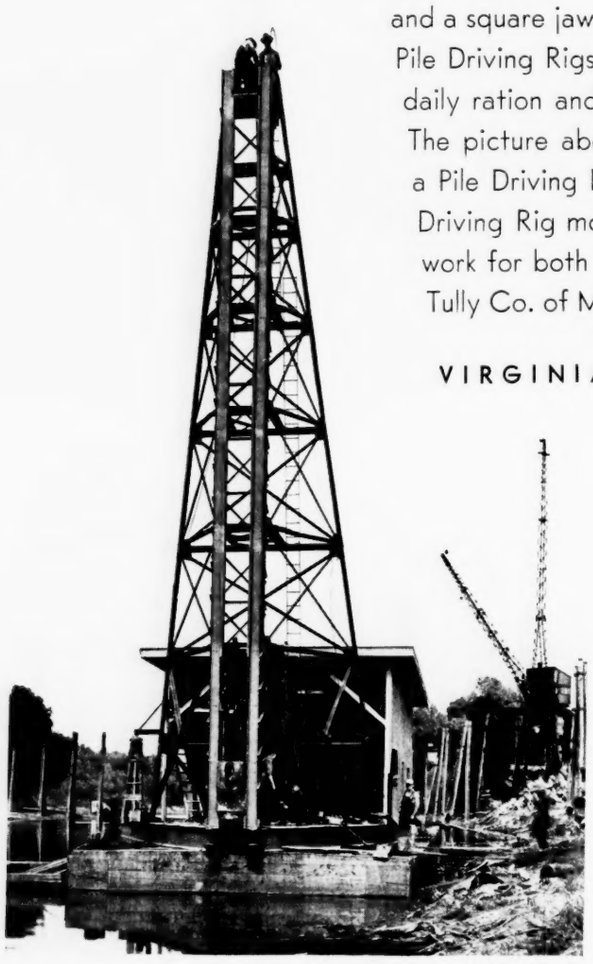
Commodity prices are going up; steel and iron are feeling an impulse of activity that has been long absent; retail sales are showing encouraging gains and the security markets have moved a considerable distance from the low points of a few weeks ago.

Certainly we were not getting any better off under the old ways. We were getting worse. Action and leadership to halt the depression were demanded, and while we are not out of the woods, we can do no less than give cooperation and help even if we cannot all at once see eye to eye with those who have the greatest responsibility for "the new day." And this does not mean we should not vigorously oppose proposals that are wrong and likely to be disastrous in their effect, especially when they include projects that are in direct competition with private business and are not the business of government.

Working on "Ol' Man River"

All is not romance and glamour on the "River". There are many grim realities which must be met with a firm hand and a square jaw.

Pile Driving Rigs and Derricks go down to hard-pan as a daily ration and steel again argues its case successfully. The picture above shows a Mississippi River scene and a Pile Driving Derrick, Revolving Type. Below is a Pile Driving Rig mounted on a barge. We built the steel-work for both at our Memphis Plant for the Anderson-Tully Co. of Memphis.



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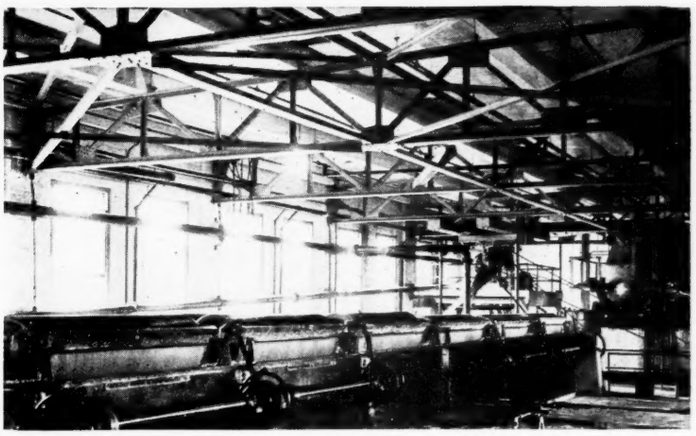
PREVENT ROT

In MILL TIMBERS WITH



Roof Timbers of Large Paper Mill Treated with Zinc Chloride to Prevent Premature Replacement, Resulting in Minimum Maintenance Cost. Timbers Painted White After installing Same as if Untreated Timber Had Been Used.

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Zinc Chloride treatment of wood has many advantages over other methods of wood preservation. Wood treated with Zinc Chloride is *clean*, similar in color to untreated wood, *odorless*, *non-volatile*, and readily *paintable*.

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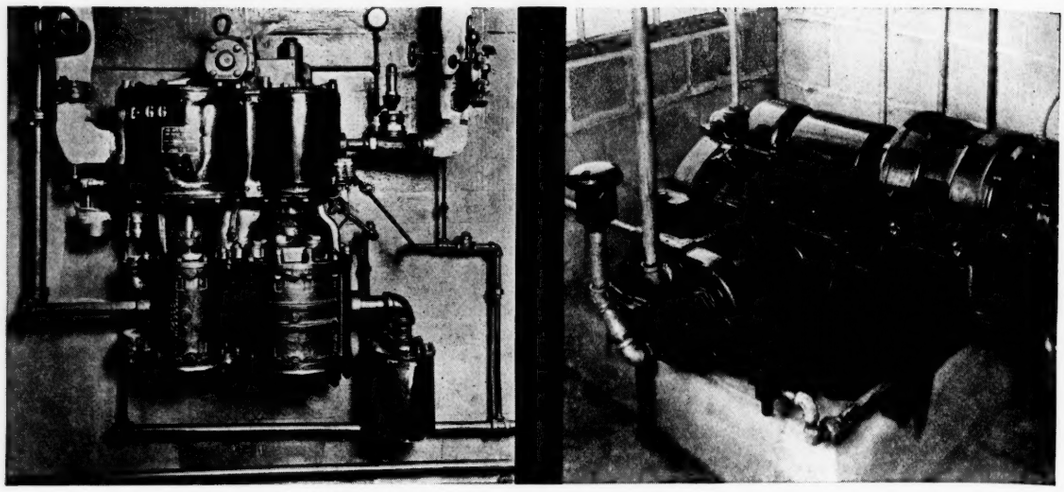
WESTINGHOUSE AIR COMPRESSORS



FOR every conceivable pneumatic requirement in steel mill or industrial plant there is available a Westinghouse Air Compressor of suitable type and size—steam-driven or motor-driven.... While there is diversity of form and purpose in these machines there is uniformity in quality and performance. They possess unique design features and are well built. Reliability, economical operation, and unusually long life are their outstanding characteristics.

WESTINGHOUSE TRACTION BRAKE COMPANY

Industrial Division - - - - - - - - - - Pittsburgh, Pa.

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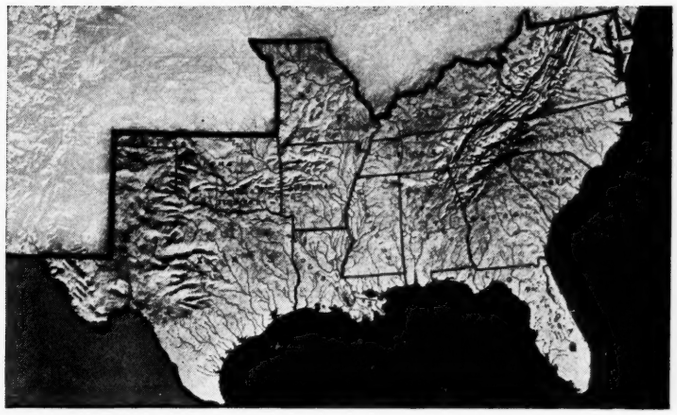

The South has 31.8 Per Cent of the Land Area and 33.6 Per Cent of the Population of the United States

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly

by the

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Frank Gould, President

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MAY NINETEEN THIRTY-THREE

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"But they couldn't copy my mind

**and I left them sweatin' and stealin'
a year and a half behind."** *(Yarn of the Mary Gloster)*

It is important to know that in high duty Sterling engines alone is observed the fact that: the centrifugal and inertia forces result in greater bearing loadings than those from the cylinder explosion pressure. These forces are balanced out of a Sterling.

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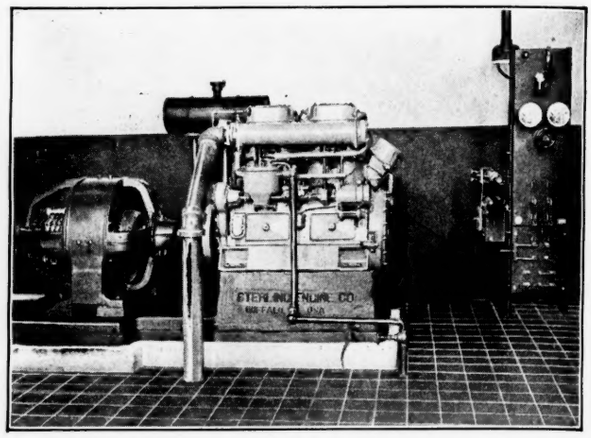

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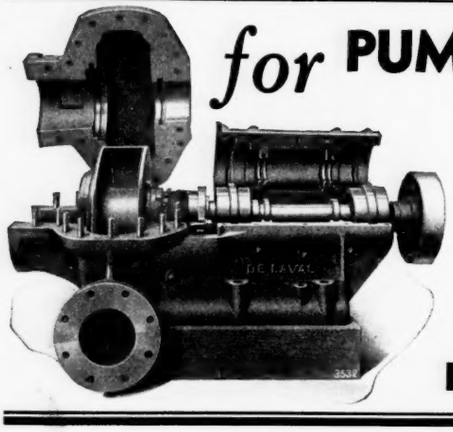

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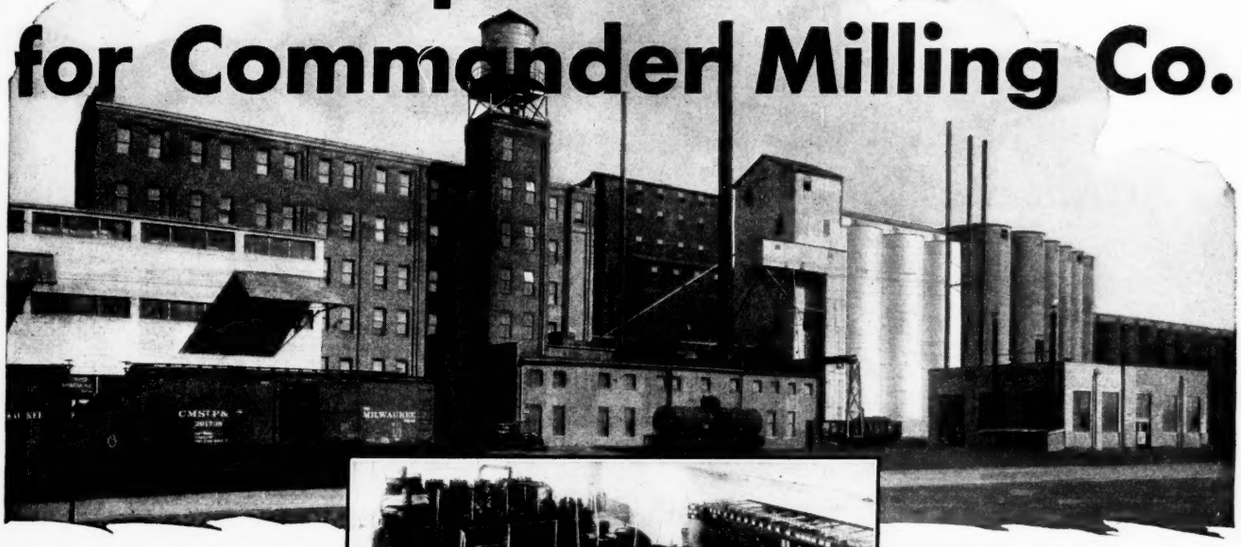
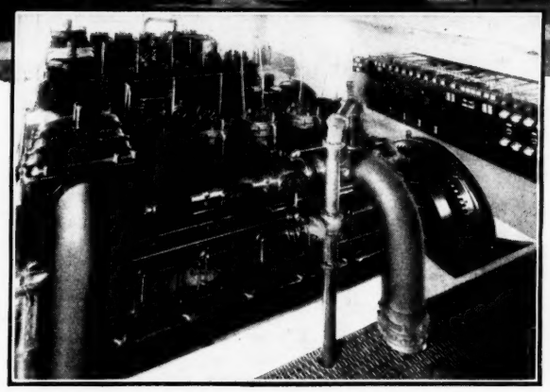
F-M DIESELS
cut power costs for Commander Milling Co.





Commander Milling Company at St. Paul; Capacity 1,000,000 barrels of flour per year. The power equipment of this mill includes:
Two 500-hp. Synchronous motors, 225 r.p.m. direct connected through C-H magnetic clutch to the two main shafts of the Durum and Spring wheat mills; Three 800-hp. F-M Diesel generating units (installed in 1931); One 360 hp. F-M Diesel generating unit (installed in 1925); Motor generator sets which furnish excitation for alternator and synchronous motors;
Cooling system spray pond, water softener and F-M motor-driven pumps equipped with automatic protective devices.

When the Commander Milling Company at St. Paul decided to remodel their power plant in 1931, three different sources of power were thoroughly investigated. They considered: (1) rehabilitating the steam plant then in use; (2) the use of purchased power; (3) installing Diesel engines.

Their investigation revealed the greater economy of Diesel power. As a result, three F-M Diesel engines and other power equipment were installed. (Note power equipment shown above.)

The experience of the Commander Milling Company parallels that of many other manufacturers. They are turning to F-M Diesel engines as the lowest cost source of power. In addition to low overall operating and maintenance charges and unusual fuel economy, the per unit expenditure for power parellels production when F-M Diesel engines are the power source. Partial operation is not penalized by a maximum power rate, established when operating at full capacity.

For the first year of operation, Feb. 1, 1932 to Feb. 1, 1933, the average cost of used power was reduced to .655 cents per kw-hr. For this period, after deducting all expenses including fuel, lubricating oil, maintenance, labor, insurance and taxes, the saving was $24,444.96! A saving of 2.99 cents per barrel of flour milled.

Complete facts and data concerning the application of F-M Diesels to plants similar to yours on request. Fairbanks, Morse & Co., 900 S. Wabash Ave., Chicago, Ill. 32 branches at your service throughout the United States.

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DIESEL ENGINES

POWER PUMPING AND WEIGHING EQUIPMENT

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Announcement

To Coal Buyers—Wholesalers—Retailers

The Starting of Business by

APPALACHIAN COALS, INCORPORATED

Appalachian Coals, Incorporated, effective Monday morning, April 17, 1933, started the sale and distribution of coals from the Appalachian territory into all the markets, and is prepared to serve the coal user, wholesaler and retailer of coal in the most efficient manner.

Appalachian Coals, Incorporated, is prepared to serve you either directly or through established sub-agents who are engaged in the business of selling and distributing coal, and who are designated by Appalachian Coals as sub-agents. To most of you this will mean that the users of Appalachian Coals can obtain them through the agencies that are now and have been supplying the trade in the past.

Appalachian Coals, Incorporated, has for sale and distribution the largest quantities of the finest bituminous coal ever offered by a single agency and is in a position to meet your every need and requirement for high volatile bituminous coals from the Appalachian region in Southern West Virginia, Virginia, Kentucky and Tennessee, where the best and most efficient bituminous coals are mined.

The mines of the Producers selling their output through this Selling Agency have a capacity of 80,000,000 tons per annum and are equipped to furnish all grades, qualities and sizes of bituminous coal in any quantity in all markets at all times.

To the Consumer of Coal:

We want your business and wish to serve you in the most efficient manner. It will be our purpose to offer you in most cases the coals you have heretofore been using, unless we find we can furnish you other coals that will serve you in a more efficient manner. While we are prepared to give you the highest grade of service, the finest quality, and best prepared coals, we expect to furnish you these coals at a cost to you that will be no greater than you have been paying for less efficient coals and service, so that your fuel cost will be in line with that of your competitor in your line of business. We want your cooperation and good will, and this we expect to gain by efficient and proper service.

Individual coals from producers' mines will be sold and shipped under the individual names or trade marks of the producers.

To the Wholesaler:

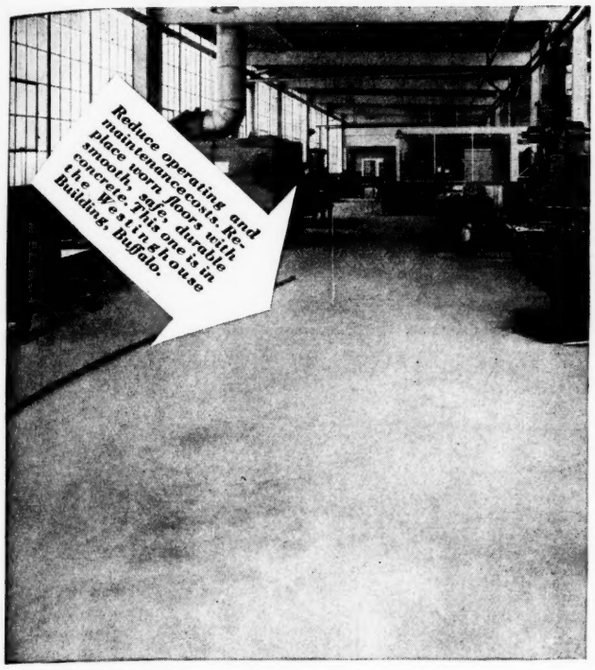
We want to keep all channels of trade open and whether or not you have in the past delivered Appalachian Coals to your trade, we would like to have your cooperation and we believe we can enable you to serve your clientele in a more efficient and profitable way than you have done in the past.

To the Retail Dealer:

We consider you our direct outlet to the householder and small industrial user of coals. We have the largest and best assortment of domestic coals ever offered to the American public. You will be enabled to deliver this product to the householder at prices profitable to you and that will enable you to increase your business by reason of the fact that you are supplying the American people with bituminous coal that is the best, safest, cheapest and, when properly handled, the cleanest and healthiest fuel that can be used in the American home.

APPALACHIAN COALS, INCORPORATED

Transportation Building **CINCINNATI, OHIO.**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• Manufacturers Record •

FOREIGN TRADE AND THE TARIFF

DUE to decreased purchasing power, trade throughout the world has declined. People everywhere have reduced their buying to a minimum. The total value of foreign trade of 24 countries, which account for four-fifths of the world trade, says the National Industrial Conference Board, decreased from $52,895,000,000 in 1929 to $42,287,000,000 in 1930; to $30,523,000,000 in 1931, and to $20,051,000,000 in 1932. The decline in the value of foreign trade from 1929 to 1932 amounted to $32,844,000,000, or 62 per cent. From 1931 to 1932 the decline was 34 per cent.

Despite the continued drop in American sales and purchases abroad we remain the leading export nation and the world's largest market with 72 per cent of our gainfully employed unprotected under our present tariff.

The total foreign trade of the United States in 1932 amounted to $2,935,000,000 compared with $4,514,000,000 in 1931, a decrease of about 35 per cent. Our exports dropped from $2,424,000,000 in 1931 to $1,612,000,000 in 1932, a decrease of 33 per cent while imports valued at $1,322,000,000 in 1932 were 37 per cent less than in 1931. Our excess of exports over imports in 1932 was $290,000,000.

The South made a proportionately better record than the rest of the country. Foreign trade through Southern ports in 1932 amounted to $807,865,000, or 27 per cent of the country's total value compared with less than 23 per cent in 1931. Exports through Southern ports in 1932 were valued at $625,985,000 and imports $181,880,000. Between 1931 and 1932 exports decreased in value 14 per cent and imports 37 per cent. Of the few exports that increased in volume in 1932 over 1931 were raw cotton and petroleum. Raw cotton exports valued at $345,000,000 and petroleum exports valued at $208,000,000 rank first and second, representing respectively 21.9 per cent and 13.2 per cent of the total foreign sales of the United States in 1932. They originate principally in the South for it produces practically all of the cotton and supplies about 66 per cent of the domestic petroleum output.

Estimating that the aggregate world trade declined from $68,000,000,000 in 1929 to $26,000,000,000 in 1932, the Department of Commerce says that "the decline was caused largely by a real reduction in volume and only partially by lower prices." Insofar as American imports are concerned there has been an increase in quantity of a great number of commodities since 1931. In the light of efforts being made to reduce the tariff in this country to allow foreign producers to sell us more goods supposedly to enable them to buy more from us, the record of the volume of imports entering the United States in 1932 compared with 1931 is worthy of study. The volume of American imports did increase during the past year, yet, excepting cotton, petroleum and a few other commodities, the volume of our exports further decreased. This fact is of great significance and of far-reaching importance in its effect upon the welfare of the American people when considered in connection with the proposed downward revision of tariff rates.

The quantity of American imports in 1932 for more than 200 commodity groups and individual items increased over 1931. Among the outstanding gains in volume of imports are fresh pork 114 per cent; hams, shoulders and bacon 53 per cent; canned meats 20 per cent; cream 50 per cent; sardines and other fish in oil 52 per cent; belting 72 per cent; footwear 112 per cent; cocoanut oil cake 90 per cent; linseed cake 19 per cent; tomatoes 15 per cent; onions 332 per cent; pineapples 61 per cent; sugar 28 per cent; olive oil and soybean oil 25 per cent; raw cotton 116 per cent; cotton goods 22 per cent; jute bagging 13 per cent; cordage and twine 40 per cent; wool knit fabric 100 per cent; sewed hats 355 per cent; kraft paper 85 per cent; pig iron 55 per cent; sheet iron and steel 33 per cent; wire 36 per cent; nails 33 per cent; zinc 153 per cent; electric lamps 60 per cent, etc. Needless

to say that each of these imported products, or those that are immediate substitutes for domestic products, helped to further curtail American industry and added to unemployment.

Despite the general increase in the quantity of more than 200 imported products, we exported a smaller volume of goods including, among others, meat products, animal oils and fats, lard, condensed and evaporated milk, butter, eggs, rice, wheat and flour, canned vegetables, oil cake and meal, vegetable oils and fats, sugar, turpentine, tobacco, sawed timber, lumber, veneers, box shooks, plywood, doors and sash, trimmings and mouldings, paper, coal, refined oils, stone, cement, lime, clays, glass, electrical goods, machinery, sulphur, salt, iron and steel and their products in practically all classifications, tinplate, structural iron and steel, cast iron pipe and fittings, wire, castings and forgings, copper, motor trucks and automobiles, fertilizers, etc.

These decreased exports during 1932, it must be remembered, represent decreased volume and they were bought abroad during a year when foreign buyers were at the same time selling us a larger quantity of goods.

If the increase in the volume of imports is possible under the present tariff, which has been nullified in many instances by depreciated currencies in 40 countries, a downward revision would certainly bring about more serious consequences to American industry. Many domestic plants have been forced to curtail operations or shut down because they could not compete with the foreign producer in our own supposedly protected market. It is a fact and not a theory that foreign buyers are selling more goods to us but are not increasing their purchases of American goods. There is no valid reason to think they will buy more merely because by lowering the tariff we make it easier for them to sell us more goods. The unsoundness of the theory of low tariff advocates that we must buy more foreign goods in order to sell more of our goods abroad is proved in the 1932 record of our foreign trade.

James J. Farrell, chairman of the National Foreign Trade Council, speaking before the recent annual convention of that body, asserted that the term "economic nationalism," does not apply to a tariff law which has ceased to protect important American industries and that our decline in export trade is not due to reprisals provoked by our tariff. The decline is due to a combination of unsettling influences abroad that have reduced the buying power of countries which have been unable to overcome the secondary effects of the war period. "Tariff reductions in the United States," said Mr. Farrell, "would have had no material effect in preventing the monetary and economic difficulties abroad which had their origin in unstable political and social conditions unrelated to the tariff question." Calling attention to the fact that 63 per cent of our imports are now on the free list, Mr. Farrell says that a horizontal reduction of tariffs, advocated by one school of thought, would be as inequitable as a flat rate of income tax on all taxpayers alike. It would deprive a number of our important industries of the reasonable protection theoretically afforded at present, and would intensify our unemployment problem.

PROTECT RAILROAD INVESTMENT

APPROXIMATELY $25,000,000,000 of the peoples savings are invested in the railroads of the United States. Nearly one-half of this, at least $12,000,000,000, is represented by bonds, a first mortgage on the entire amount. These bonds are held by individuals and financial institutions, including savings banks and insurance companies in which practically all the people are interested, directly or indirectly. In addition, the par value of the outstanding stock is about $10,000,000,000.

Although the actual value of the physical properties of the railroads is greater than the par value of their stocks and bonds, under depreciated prices of today, the market value is 50 per cent below par. At the present market price, the investing public is putting on the entire railroad plant of the country in which is actually invested some $27,000,000,000, according to John J. Cornwell, general counsel of the Baltimore & Ohio Railroad Company, and which the Interstate Commerce Commission valued at $25,000,000,000, based on 1914 prices, a fantastically low value of roughly $10,000,000,000.

A point here to consider is that the financial position of the railroads is practically no different from the average business corporation and Judge Cornwell reminds us that a recovery in business from 10 to 20 per cent, stripped as the railroads are by the past three years of adversity, would enable them to meet their bond interest. Institutions owning bonds would have billions of dollars added to the value of their present assets and railroad credit would be reestablished. In other words, the fundamental difficulty in which the railroads find themselves is lack of business, which is the same thing that ails industry in general.

Railroads, however, while being forced to operate under strict Government regulation as to rates and earnings have had to compete with transportation agencies that have in whole or in part been subsidized by Government. This regulation prevented the railroads from accumulating a surplus in the period of high prices and the competition which Federal and State governments have aided, and used tax money paid by the railroads in so doing, has further prevented them from securing revenue producing tonnage which curtailed the gross volume of railroad transportation and limited ability to earn even operating costs.

In view of this, it is proper that the Government, "stand by the railroads for a reasonable period" as President Roosevelt has said, in order to preserve to the country its major transportation agency. The program for stabilization and rehabilitation of railroad securities outlined during the Presidential campaign in his Salt Lake City speech has been given the support of investors, railway managers and the public. The Government should continue to make necessary loans to essential railroad systems which in normal times have been efficiently managed and see that equality of legislation and regulation be applied

to all transportation agencies as desirable from the standpoint of the public welfare.

Every assistance should be given by the Government to sound consolidation plans that will enable the railroads to more efficiently serve the transportation needs of the country. American business is entitled to a service that will give adequate, regular and quick transportation at a minimum cost under which the railroads can earn a fair profit. Such assistance as will bring this about will restore confidence and improve the position of railroad securities.

FORESTING AND PAPER MAKING

A LUMBER and timber operator, referring to reforestation and paper making possibilities in the South, cites the advantages of this section in growing timber rapidly and at low cost. "Our experiences," he writes the MANUFACTURERS RECORD, "corroborate the opinions of those who are supposed to be authorities on the subject; namely, that reforestation from the standpoint of growing timber for profit in the mountainous districts or in regions where the seasons are short can in no wise be compared with such an enterprise in a section where timber grows many times faster and where it can be economically harvested. A limited amount of drainage in connection with fire breaks is all that is necessary for rapid forest development in the Southeast, nature will do the rest. In addition to the remaining pine forests, where timbered lands have been cut off young trees of poplar, magnolia, bay, tupelo, cottonwood, etc., are abundant and growing rapidly. Pulpwood and kraft paper mills have been established in the South and the industry will expand as the manufacture of white paper from pines develops in this region."

The points raised in the foregoing are worthy of careful consideration by those in charge of the Government's reforestation program, especially since the recent announcement of Dr. Charles H. Herty, head of the experimental paper plant at Savannah, that white paper of excellent quality has been manufactured from seven-year-old slash pines. A feature of the new product is its strength and light weight. It has a burst strength of 10 to 12 pounds a square inch compared with only 6 to 10 pounds for the standard newsprint and it is a 30-pound paper in weight compared with a present standard of 32, which means that newspapers using it would receive 6⅔ per cent more printing surface per ton and mailing costs, by weight, would be 6⅔ per cent less.

Spruce, forming the main resource for pulp wood at present, matures in 50 to 60 years, and two-thirds of American newsprint is now imported. Research has shown that Southern pines can produce wood pulp on a commercial basis in from one-seventh to one-quarter the time required for the spruce to reach maturity. Spruce pulp costs $9 to $10 a ton while pine in the South sells for $3.50 a ton. Spruce pulp wood is stored often for a year in advance adding to the overhead cost while the pine is available without more than two or three weeks storage, according to Dr. Herty. Also, probably equal in speedy growth to the slash pine, is the South's greater area of loblolly pine. As a result of the revolutionizing developments in paper making, a very definite outlook is opened for the South to grow pine trees to furnish a perpetual supply of pulp wood raw material for the paper industry of the country.

The manufacture of paper in the United States will center in the South as has the textile industry in which this section is producing 85 per cent of the cotton goods made in all American mills. Already the South has become the leading kraft paper making region of the country.

Therefore, in the Government's afforestation program, it would be well for the Administration to immediately investigate the possibilities of producing fast-growing slash and loblolly pines in the Southeast and Gulf regions to make the United States independent of foreign pulp wood. The money spent abroad for these products would be spent at home giving employment to American labor and adding to the wealth of the nation.

In addition to the great undeveloped pulp wood resources, sulphur from Louisiana and Texas and kaolin from the world's greatest clay belt extending through Georgia, two of the main ingredients in the manufacture of white sulphite paper, which are now shipped from 1500 to 2000 miles to Northern and Canadian paper mills, are available in the South literally in some cases at the roots of the pine trees.

As a self-liquidating project combined with the creation of employment, reforestation in the pine belt of the lower South offers a great opportunity for efficient internal development.

COTTON

THAT cotton should hold the spotlight in a nation-wide observance of Cotton Week May 15-20 is more than a tribute to this great industry of the South. Cotton manufacturing has been one of the few industries which have maintained throughout the past four years of depression a comparatively high operating ratio to capacity. What could be more appropriate than for this industry and its products to be acclaimed by official recognition in many states, through community celebrations and through displays of cotton goods by the merchants of the nation.

Cotton fabrics for clothing, for household use, interior decoration, upholstery, awnings, have been supplemented by new cotton products for new uses in the industrial and construction field. Cotton in road building, "cotton houses" are among more than 100 separate illustrations of the use of cotton fabrics.

COAL PRICE STABILIZATION AND ORDERLY MARKETING

By

Jesse V. Sullivan

Secretary
West Virginia Coal Association
Charleston, W. Va.

OPERATING under a decision of the United States Supreme Court that upheld its validity, Appalachian Coals, Inc., a regional coal sales agency, embracing eight high volatile mining districts in southern West Virginia, eastern Kentucky, Virginia and Tennessee, started to function on April 17. It is the first effort of the bituminous industry to control disorderly marketing of the product since the World War when governmental machinery compelled acquiescence to war-time mandates of a fuel administration. Through this single cooperative selling agency, will be handled more than 40,000,000 tons of bituminous coal annually.

Sponsors of the pioneer sales agency in the bituminous industry are firmly convinced that it is the most forward step taken by the industry in a generation to stabilize prices and eliminate disorderly marketing. While the operators in 136 coal companies which form the agency freely admit that it is not a panacea to solve all the problems of the industry, they believe that it is the most advanced and the essential step required in advance of subsequent action that will necessarily follow to restore King Coal to his post-war prestige, when 80 per cent of the energy demand of the nation was supplied by bituminous coal.

Success of the Appalachian agency in the courts and the completion of its organization to begin operations has had an extensive influence in all the districts east of the Mississippi River. Radiation of confidence in the capacity of central coal sales agencies to secure stabilization of prices for the commodity is reflected in the fact that similar agencies are now in the process of organization in the smokeless or low volatile fields of southern West Virginia; in western and central Pennsylvania districts; in northern West Virginia districts and in Ohio and the northern West Virginia panhandle counties, the latter to be known as Northern Coals, Inc. These several agencies will compete with each other in the consuming markets of the East and Middle West, the largest coal consuming centers of the nation.

Headquarters of the Appalachian agency have been established in Cincinnati, a coal distributing center and the gateway to the Middle West and Southern markets. James D. Francis, of Huntington, W. Va., vice president of the Island Creek Coal Company, one of the early advocates of regional agencies, remains as the president of the Appalachian agency and R. Emmet Howe, of Knoxville, Tenn., secretary and treasurer of the Southern Appalachian Operators Association, is the secretary. Mr. Howe is the manager of the Cincinnati office, located in the Transportation building.

The sales organization of the Appalachian agency is in charge of W. J. Magee, vice president of the Carbon Fuel Company, who has been in Cincinnati for many years as the director of sales for his company. Associated with Mr. Magee are a number of sales managers loaned by their companies for this special purpose.

These sales executives are: Fred E. Gore, vice president and sales manager Blue Diamond Coal Sales Co., Cincinnati; W. Arthur Elliston, sales manager, Southern Coal & Coke Company, Knoxville; Calvin Holmes, president Holmes-Darst Fuel Company, Knoxville and Cincinnati; W. R. Kernohan, president Glen Alum Fuel Company and Pocahontas Coal Sales Company, Cincinnati; Venable Johnson, district manager Island Creek Coal Company, Detroit; Victor F. Carraher, West Virginia Coal & Coke Corporation; T. H. Richardson, Elkhorn Coal Corporation; John O. Smith, General Coal Company, and D. C. Brown, Consolidation Coal Company.

One of the major problems of the bituminous industry in the past several years has been the tendency of an operator to slash wages in order to secure a contract for a large tonnage. Other operators in the same producing district invariably followed with similar wage cuts until all were on the same wage level. The sales agency plan eliminates this cut-throat competition. Those who have faith in the plan believe that stabilization of prices will be followed by increased benefits to the worker.

Under the central sales agency plan it is not expected that competition will be eliminated or stifled, even between coals sold by the agency, but that the general agency will sell each producer's coal on the basis of a fair competitive price with the coal of each other producer employing the general sales agent.

Under the terms of the contract between the sales agency and the producing company the selling agent is required to establish a standard classification for all coal which is sold, based upon the suitability of the coal for particular purposes, such as domestic coals, gas coals, by-product coals, metallurgical coals and steam coals. The producer is required to promptly fill all orders; to prepare all coal in accordance with good practice; to screen all such coal as required by the selling agent and to ship such coal in accord with the direction of the selling agent.

Existing sales agencies are not disturbed by the regional sales agency. The producer may at any time designate any person or firm to act as a sub-agent of the sales agency to sell the coal of the producer and the selling agent agrees in so far as possible to sell the coal of the producer in the markets to the same customers and under the mine name or trade name that the producer has heretofore used.

The selling agent as represented by the regional sales agency under the terms of the contract is required to sell the coal of the producing mine at the best prices obtainable under existing competitive conditions and with due regard to the quality, preparation and classification of the product. Authorization of the producer is required when contracts are made for future deliveries of coal beyond 60 days from the date of the contract.

It has been estimated by the sponsors of the Appalachian agency that 75 per cent of the coal mined in the eight Southern high volatile districts is sold and consumed in the territory north and west of the Ohio River. The Southern output reaches this region with freight rate disadvantages ranging from 25 cents to about $1.50 per ton. To meet this competitive situation in the markets against coals of comparable quality produced at approximately the same or lower costs, requires the most intelligent sales effort on the part of the Southern producers. The regional sales agency permits the concentration of individual efforts to trade in these markets and gives assurance that disorderly marketing will be abandoned.

ARE INDUSTRIAL PRACTICES IN STEP WITH THE TIMES?

By

Harold Vinton Coes

Manager
Industrial Department
Ford, Bacon & Davis, Inc.
New York, N. Y.

THE industrial executive who expects to correct poor balance sheets must recognize that change is the most consistent and permanent factor in the present business era, and that he must work out, not only policies but practices of production and distribution that are based on the philosophy of change.

We have only begun to realize that we have developed such a technique in generating, distributing and applying electrical energy to man's needs and such a technique in research, and the rapid adaptation of the products developed by research to commercial uses, that changes in products, in production and distribution are exceedingly rapid. The product in the research laboratory today may be the commercial product of tomorrow.

The effects of these changes are widespread. Instead of transporting raw materials to the factory in most cases, as we have in the past, power or its equivalent is now more and more being transported over wide areas to plants located in close proximity to the raw material. This is bringing about a dissolving of concentrated industry. Branch plants are receiving more careful consideration, since a closer coordination of production and distribution centers can thereby be effected.

The development in research has brought forth a new type of competition, not as between products manufactured by units in the same industry, but among the products of different industries—concrete with structural steel and with brick, natural gas with coal and fuel oil, steel stampings with castings and forgings, rayon with silk and cotton, trucks with railroads, buses with street car and passenger car service, domestic mechanical refrigeration with natural and artificial ice, fiber containers with those of wood and metal, and so on over a long list.

In addition to the above and the inter-industry competition, we have the all-important competition for the consumer's dollar—clothing with radio and autos or mechanical refrigeration, radio with magazines and theatres. Form, art, color, style and fashion bring about a host of changes in a wide variety of articles, rendering some supposedly stable products obsolete almost overnight.

Products are being designed and marketed on a basis that has its roots in a static society, whereas the fact is we are living in a dynamic society, due to the influences of power, mechanization, mobility and the means for rapid communication.

Means of communication and of communicating intelligence are such that notice of a new product in a market today may be flashed around the earth in a few hours. We must, therefore, change our conception and make many products applicable and good for a much shorter period. Homes are no longer required to last 50 to a 100 years, or furniture either. Automobiles and radios change in style and character very fast. This conception would change our attitude towards product design, to our entire production and distribution philosophy. Products would be designed to last a much shorter period, probably costing a good deal less than that to which we have been accustomed. Whole plant equipment and processes might be obsolete in a short period—five years, say. Therefore, productive processes would then have to be completely overhauled. The distribution system might be worked out satisfactorily for a given article or class of articles and have to be largely scrapped at the end of a given period, much shorter than we have heretofore considered as essential and necessary. Rapid introduction of products, a rapid acceptance, a rise to a peak, a subsidence and then rapid supersession by other products, seem to be the order of the day. Change, obsolescence and change upon change take place with confusing rapidity.

There is every reason to believe from the evidence at hand that we have *in the United States today more accrued obsolescence in equipment, processes and methods, and yes, in management technique*, than in almost any period in our history and farsighted, keen managements alive to this are rapidly putting their houses in order against the time when business conditions improve and commence to approach normal. They are studying their designs, their processing, their equipment, their tools, jigs, fixtures and auxiliaries, their plant layouts, their excess facilities and setting up a program for the writing down and abandonment of excess facilities and the elimination of obsolete methods, processes and equipment. That many believe that such a program is sound and will ultimately pay dividends, and is even vital to existence, is evidenced by the appropriations that have been made and are being made for rehabilitation purposes.

Economic salvation today rests almost entirely on the ability of an organization to be quick on its feet, to be adaptable, to sense fundamental and forthcoming changes quickly, to adapt rapidly to changing desires, changing conditions and the changing orders.

This requires that change be spelled in capital letters, that there be flexibility in management, open mindedness, a will to face conditions as they are. Flexibility in design, in processing, in equipment are required. There is no guarantee that expensive single purpose equipment, in many instances, can be amortized during the life of the product.

Mr. Kenneth Condit, Editor of American Machinist, in a paper entitled "Future of Mechanization in Production Management," presented before the American Management Association in Chicago, March 11, 1932, sums up the production situation, with respect to change, as follows:

> "Salvation today lies in the ability to move quickly—to drop products that will not sell and to develop new ones or adapt old ones to the requirements of the market. Heavy fixed investments in special purpose machinery may be a thing of the past except in the making of staple products by processes that approach the continuous.
>
> "Manufacturing flexibility implies the employment of versatile machines. The versatility, of course, may be obtained in more ways than one. We can build flexibility into a single machine until it can be made to do almost everything but think. And we can then build a production line of such machines. Such units are of necessity expensive, but they are readily movable.
>
> "Production managers today are demanding a higher on the dollar investment in equipment than ever before, probably because they are allowed so few dollars for equipment replacement. There seem to be no signs of a change in this attitude because it is going to be a slow job to educate management in general to a realization of the importance of the obsolescence factor."

Houston Skyline

FACTORS IN THE GROWTH OF TEXAS' LARGEST CITY

By

Burt Rule

SOUTHWESTERN cities, generally speaking, appear to enjoy more than average good fortune with respect to possessing factors that make for prosperity and progress. A case in point is Houston, Texas' largest city, which has grown in less than a century from a hamlet on a sluggish bayou to metropolitan proportions with a population of 340,000.

Houston's first forward movement on an extensive scale followed the development of its bayou into an inland harbor with attendant industrial expansion on a large scale. Then followed its emergence as the nation's most important cotton concentration center. After that came the location of large petroleum interests and the establishment of extensive refining facilities. Finally, while the nation is wrestling with the problems of the most acute business depression in its history and the wheels of industry are slowed down in every section, Houston bobs up with an oil expansion movement of enormous proportions and vast potentialities. It has all the earmarks of a community on the threshold of marked and rapid expansion based on conditions that can safely be evaluated over a period of years.

This doesn't mean that Houston is completely out of the woods so far as the depression is concerned, or that business conditions are ideal. But it is a fact the depression is less apparent in Houston than elsewhere and the certainty of great activity in the petroleum industry lends a feeling of confidence and optimism which is evident in the attitude of Houstonians.

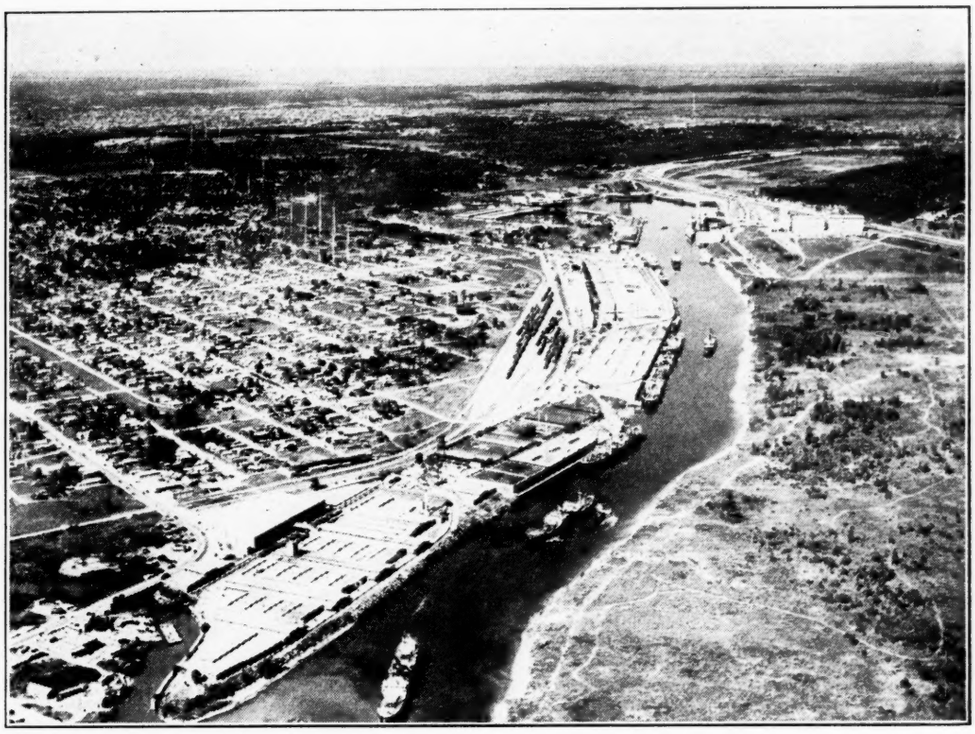
Like many other lines of trade and commerce the petroleum industry is suffering from adverse business conditions. Consumption has receded; the supplies of crude exceed demand at the moment and frantic efforts are being made to adjust production to demand. On the other hand the visible supplies of crude petroleum are by no means excessive or even adequate in terms of the nation's requirements over a period of years. It is this situation which stimulates the development of new oil fields and Houston happens to be at the very center of what is rather generally accepted as America's largest undeveloped reserve of petroleum.

In the Houston territory 108 oil fields have already been developed and 125 additional have been located by geophysical survey or the drill. In 1932 approximately 1400 wells were drilled at a minimum average cost of $25,000. In 1933 probably 2000 wells will be drilled with a distribution of not less than $50,000,000 in wages and drilling equipment. The justly famous East Texas oil pool is not included in these figures. Concurrently the demand for oil field equipment has been "stepped up" materially. Expansion in storage, terminal and refining divisions will follow as a natural course, and in several instances is now being worked out. In 90 days 60 new oil companies have come into Houston by transfer or charter. More than 500 families have been brought into the city as the result of the shifting of company offices. Unemployment conditions have not improved as much as might be expected because of the influx of persons seeking work and attracted by the report "business is good at Houston." However, the business barometer is rising. In evidence is the list of new ventures reported from month to month by Houston Chamber of Commerce. Up to April 12 no fewer than 231 new enterprises had been launched. The Chamber of Commerce undertook a campaign to maintain a $160,000 budget for its 1933 activities and secured slightly more than the objective. Various other fund-raising efforts have been conducted with satisfactory results.

The future promises much. In six months operating oil companies have taken leases on more than 5,000,000 acres in the Houston area. All of this eventually will be explored with the drill. It will be seen at a glance that the petroleum movement around Houston has many years of activity ahead of it before the possibilities of the section are exhausted. At least a quarter of a century will be required to determine the extent of the oil fields, which will constitute a record of longevity in marked contradistinction to the average "oil boom."

During its record-breaking growth covering the decade ending 1930 the business section of Houston witnessed swift expansion. Since then there has been a holiday in respect to downtown building, but a considerable volume of residential construction has been and is proceeding. Much office building space has been taken by incoming petroleum companies so that in respect to percentage of occupancy the first class office structures in Houston probably make a much better showing than average.

Houston Now Ranks Among the Nation's Great Industrial and Exporting Centers



Ship Channel and Turning Basin

Transformation of an old bayou into an inland harbor and world port 50 miles from the sea, an epic in engineering and industrial development

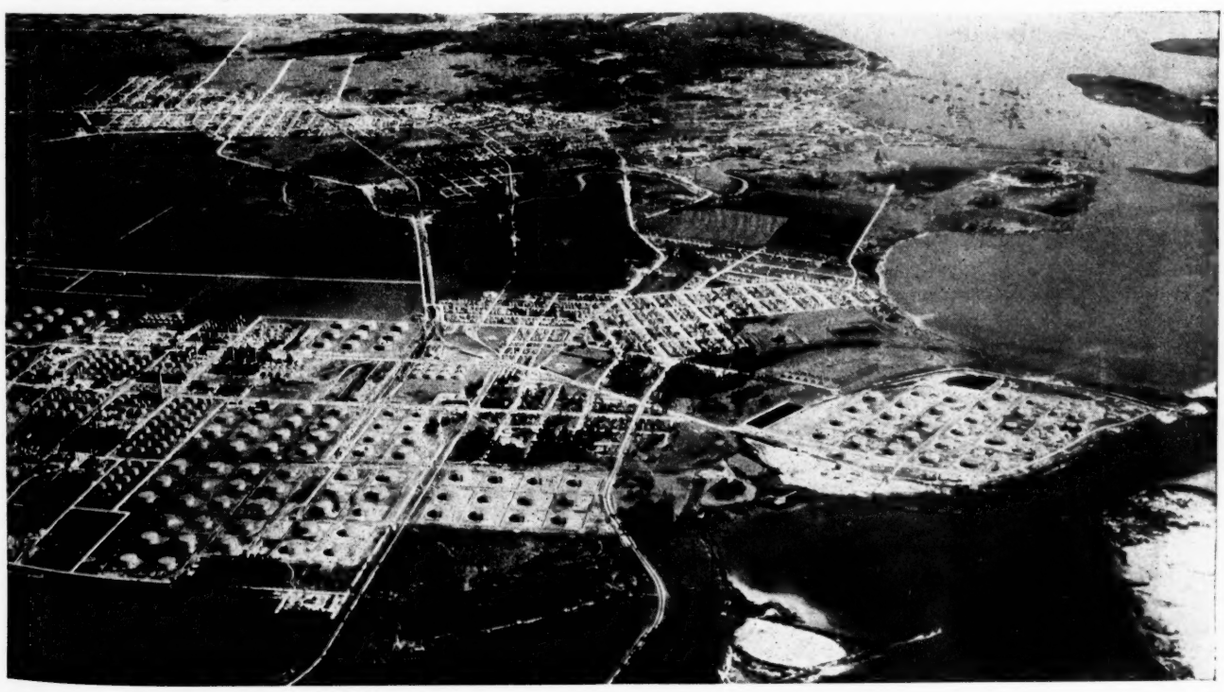
Prominent in the foundation on which Houston is building is its port. The 1932 record is most stimulating in that the volume of seagoing traffic for 1932 showed a good increase over the preceding year.

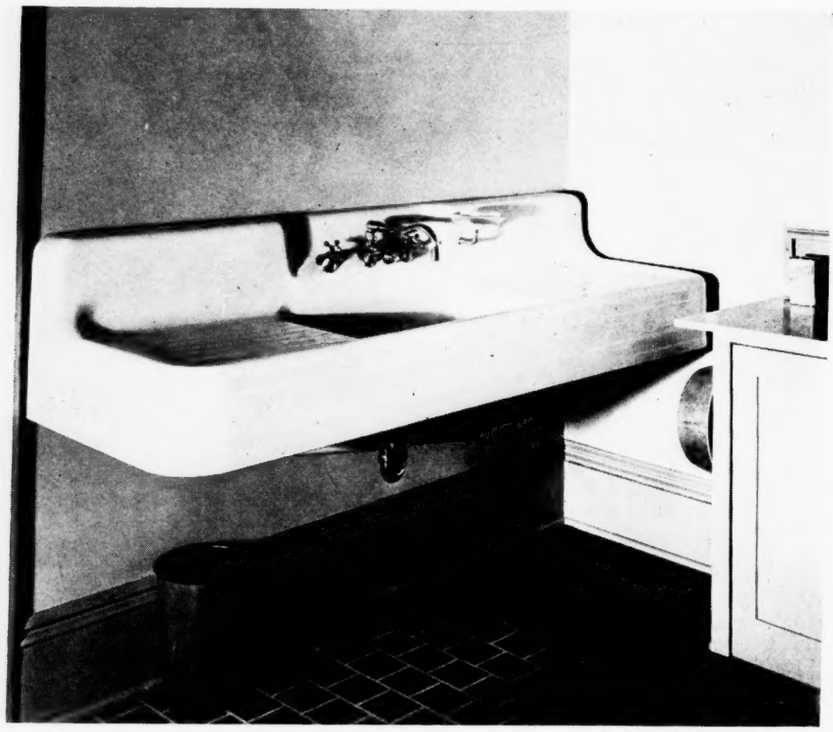
A modern epic in engineering, the transformation of an old bayou into a ship channel and the building of a world port is given by Houstonians as the principal reason for Houston's rapid development in the last decade. Though situated 50 miles from the Gulf of Mexico, huge oceangoing steamships bearing cargoes and passengers from the seven seas and flying the flags of all nations can be seen within the corporate limits of Houston.

The city's growth is reflected in the fact that the 1930 census placed Houston's population of 292,352 as first in Texas and sixth in the cities south of Baltimore. The United States Census Bureau estimated Houston's population at the beginning of 1933 to be 319,000. The year 1930 also saw the announcement of the port's advance to first place in the nation as a cotton port. As further evidence of the city's advancement, Houston was the only large city in the nation in which postal receipts showed a gain over each corresponding month of the preceding year. Houston also led in the per capita expenditure for home building.

(*Continued on page* 42)

One of Houston's Large Oil Refineries





An Acid-Resisting Sink of Modernistic Panel Design Marks This Improvement in the Kitchen of a 75-Year-Old House

PLUMBING AND HEATING IMPROVEMENTS

By

H. W. Seymour

Vice President, Crane Co.

Chicago, Ill.

THE sales policies of the plumbing and heating industries during 1933 will be based on a frank recognition of the fact that the potential replacement and rehabilitation markets exceed the prospects for new construction.

It seems to be entirely reasonable to expect that the 1933 sales volume will at least equal, if not exceed, that of 1932. Plumbing and heating equipment *does* eventually wear out. During the last three years only the most necessary repairs have been made in the home, in the apartment building, in the hotel, the school and the factory. In many cases the necessary replacement can no longer be postponed. Wear and corrosion do their work irrespective of the economic cycle. There comes a time when even the most penurious of building managers realizes that a leaking flush valve, faucet or shower control is both wasteful of water and unpopular with tenants.

Prices at Low Point

Stabilizing of prices at a level approximately 43 per cent below the level of 1926, in the case of plumbing equipment, and 40 per cent below the 1926 level in the case of heating equipment is another encouraging factor. It is evident to anyone who has watched the tendency of plumbing and heating prices in the last three years that, since last summer, there has been every indication that the low point of the price recession has been reached.

Indeed, with the prevailing bargain prices at which the best materials of the most reputable manufacturer may be purchased, there is every incentive for the owner of income property to make today those improvements or additions which will attract better tenants or enable him to hold the tenants he now has.

In this connection the "plumbing consciousness" of the renting and buying public of today is worthy of special mention. Tenant reactions to plumbing and heating equipment have not been modified by present business conditions. Regardless of how much he expects to pay, the tenant wants the best in plumbing and heating equipment that he can get for the maximum rental he has in mind.

New and Improved Products

While price is important, of even greater significance is what the purchaser of plumbing and heating equipment is getting for his money today. In this connection a word must be said about the research work which the larger manufacturers are doing. While the manufacturing plants in recent years have been operating at less than capacity, the research departments have been working overtime to make improvements in the performance and appearance of plumbing and heating products.

The result is a host of new products, many of them with such vastly improved sanitary features and such striking advances in engineering principles to recommend them that they will pay for themselves in a short time.

There is, for instance, a new showerhead only two and one-half inches in diameter as compared with the conventional four-inch head. At a distance of three feet, this new midget head throws a stream with as large a circumference as the four-inch head. Yet, the bather will obtain a shower with only half the amount of water required by the larger head.

It is obvious, of course, that not only the economy of water but the saving in fuel required to heat the water is an important consideration. This fact, together with the easy-cleaning features of this showerhead, have made it instantly popular with school officials, apartment owners, hotel managers, etc.

Manufacturers of plumbing and heating equipment are constantly striving for simplicity. There is now on the market a radiator shield which represents the utmost in simplicity of construction. It is nothing more or less than narrow strips of heavy gage steel which can be inserted between the radiator sections. Inserted in a certain position, these shields have the effect of deflecting the currents of warmed air from the radiator into the room at the breathing level, thus reducing the under-the-ceiling temperature, sending more heat into the occupied area, making the room more comfortable, reducing fuel consumption, and at the same time preventing the warm air currents from depositing dust on the walls.

Better Boilers

Much could be said about the improvements in hot water and steam boilers.

Increased Efficiency and Low Cost Present Unparalleled Modernizing Opportunity—Plumbing Equipment 43 Per Cent and Heating Equipment 40 Per Cent Below 1926 Price Level

The average person notices only the superficial change in the appearance of the boiler, as for instance, the handsome colored jacket. With the increasing tendency to utilize basement space for recreational purposes, this "dolling up" of the boiler is interesting, but not the chief improvement made in this important item of household equipment.

The really important changes have to do with the length of fire-travel, the heat absorbing qualities of the boiler, its fuel box, the size of the combustion chamber, and the performance of checks, drafts and regulators.

Unwilling to market any boiler or radiator whose performance has not been carefully checked, Crane Co. has constructed a unique testing apparatus. This is a mammoth refrigerator. In this refrigerator has been constructed a typical room with typical doors and windows. The radiator to be tested is placed anywhere in the room with the windows and doors closed. The refrigeration apparatus has a capacity sufficient to reduce the temperature outside the room to 20 degrees below zero, if necessary. The performance of the radiator is recorded by 100 thermocouples placed in various positions and at various heights in the room.

This apparatus is mentioned as proof of the fact that the public today has offered to it not merely plumbing and heating equipment at bargain price levels, but equipment of the highest quality, which has never been available before. This equipment represents the same technical and aesthetic advance as the 1933 model automobile illustrates, as compared with its predecessor of a decade ago. The home-owner or the owner of income property has every incentive for modernizing his plumbing and heating equipment today.

Adding New Facilities

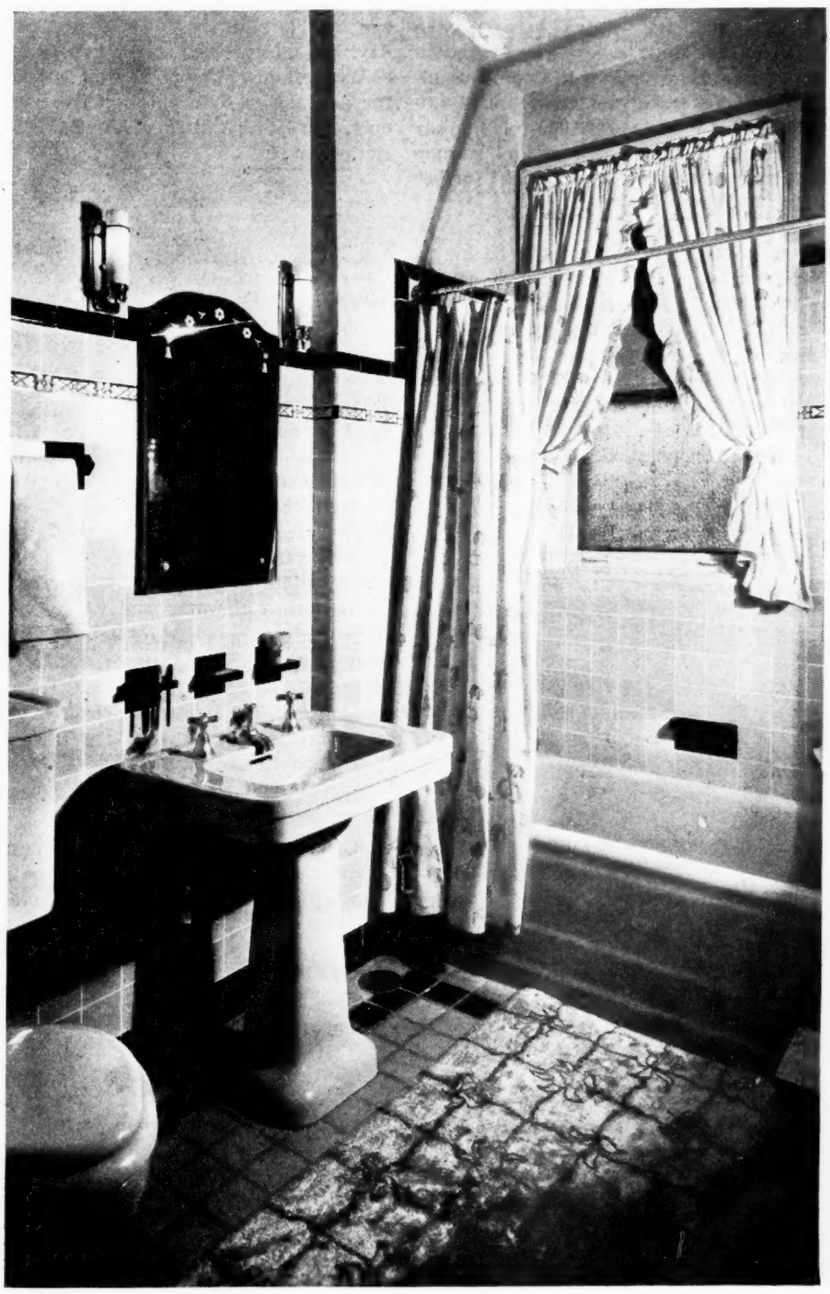
Closely allied to the replacement market is the market for additional equipment in the old house which is structurally sound. Nearly all the houses built more than five years have an inadequate number of bathrooms. Lack of an adequate number of bathrooms in a house or apartment is a serious inconvenience. This is especially true today when so many families are "doubling up." It is a decided health hazard.

In 1933 as in 1932, no doubt, there will be thousands of closets and hall ends converted into extra bathrooms with resulting enhancement of the value of the property. It is not without significance in this connection that the first loan made under the provisions of the Home Loan Bank Act was for a modernizing project.

In connection with the housing question, the plumbing and heating industries have noted the increasing interest of the public in the question of better housing for the low salaried worker. Whether this takes the form of rehabilitation of blighted areas or some other kind of a low cost housing project, it is sure to bring the benefits of modern plumbing and heating to the millions who are still living in the midst of medieval conditions in large cities and small towns and rural districts.

There is a direct relation between good citizenship and good housing. There is also a direct relation between good plumbing and good health. Good housing for the American family is an investment in good citizenship and good health.

A Modernized Bathroom Combines Beauty and Utility



AN EXTENSIVE SANITARY PROGRAM

By

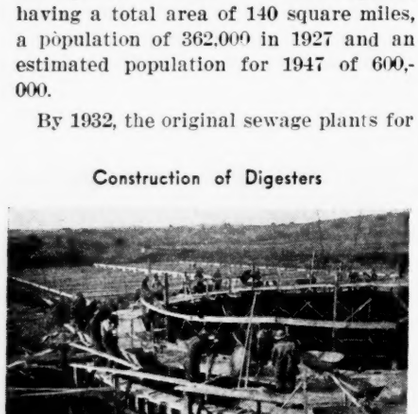
H. H. Hendon

County Sanitary Engineer
Birmingham

A STEADILY growing population in the Birmingham District caused the State Legislature in 1901 to take steps to develop a sanitation program. The Jefferson County Sanitary Commission was created and authorized to issue $500,000 of 30-year bonds to construct sewers and sewage treatment works. Since then further growth has necessitated enlargement of the original plans and extension of sanitary projects, so that at the beginning of 1932 Jefferson County had a capital investment in sewage works of approximately $1,200,000. They comprise the necessary sanitary mains to drain the metropolitan district of Birmingham, having a total area of 140 square miles, a population of 362,000 in 1927 and an estimated population for 1947 of 600,000.

By 1932, the original sewage plants for

Construction of Digesters



the Village Creek area, located at Ensley, and the Valley Creek area, located at Bessemer, were grossly overloaded and obsolete, and there was great demand for the extension of the sanitary sewers in the Shades Creek area.

By refinancing the original Sanitary Sewer Bonds, and by spreading the program over the next four years these projects could be financed and built in the folliwing order:

Ensley Sewage Plant

The Ensley Sewage plant which cost $175,000 will treat sewage from the Village Creek drainage area consisting mainly of the eastern and northern parts of the City of Birmingham, and having an area of 39 square miles. This plant discharges into Village Creek which flows about three miles into a 3,500,000,000 gallon impounding reservoir of the United States Steel Corporation, and about 12 miles further on into the Warrior River. This impounding reservoir is a source of a 40,000,000 gallon a day industrial water supply for the furnaces and steel mills of the Steel Corporation, being used for cooling, steam, etc.

The present dry weather flow of sewage at this plant is 9,000,000 gallons a day, and the present storm flow is 18,000,000 gallons. The plant was designed for primary or sedimentation treatment only, consisting mainly of the following equipment:

Mechanically cleaned bar screens.
Screening incinerator.
Mechanically cleaned grit tank.
Venturi type sewage meter.
Two mechanically cleaned settling tanks.
Two plunger type sludge pumps.
Dry chemical feeder.
Two heated mechanical sludge digestion tanks, gas collection type.
Twenty-four sludge drying beds.
Gasometer (5000 cubic feet).
Administration building.

Practically all of the incoming sewage is reclaimed as some by-product. The sand is used on the drying beds, the sludge is converted into fertilizer the gas collected from the digestion process is used throughout the plant and the water after passing through the impounding reservoir is used by the Steel Corporation as part of the scource of their industrial water supply.

This plant was designed by the writer, and after completion was checked and approved by Fuller and McClintock, consulting engineers, New York. Christie, Hutchinson & Burton, Inc., Birmingham, are the contractors.

Bessemer Sewage Plant

The Bessemer sewage plant will treat the sewage from the Valley Creek drainage area, consisting of the western and up-town parts of the City of Birmingham, the cities of Fairfield, Brighton and Bessemer, and a large intervening developed but unincorporated area, with a total area of 65 square miles.

Administration Building

The present dry weather flow at the plant is 14 000,000 gallons a day. The screening plant is designed for a storm flow of 40,000,000 gallons a day. Bids were received for construction of the screening plant on January 31, 1933, the low bid being $31,000. The plant consists of the following units:

Mechanically cleaned bar screen.
Venturi type sewage meter.
Main building, housing screen room, incinerator room, office.

Shades Valley Sewer Extension

The Shades Creek drainage area south of Birmingham is about 3 miles wide and 12 miles long. Here are located exclusive residential developments. For the past ten years there has been a constant exodus of people out of Birmingham into Shades Valley. Work was started in December, 1932, to extend the sewer system of this area. A feature of the job was the laying of about 1½ miles of especially designed 42-inch cast iron pipe. During the summer of 1933 a 12 to 24 inch branch sewer is to be built to serve part of the city of Homewood, the Country Club and Redland Park district. The County is to build in 1934 a small plant, 3,000,000 gallons, on Shades Creek near Englewood Lake.

Shades Valley Sewer Extension

The Boyles sewage plant will treat the sewage from the Five Mile Creek drainage area, consisting mainly of the cities of Boyles, Tarrant City, and part of Birmingham, a total area of 7 square miles. This plant will be built in 1934. Flow measurements and chemical analyses of the sewage will be taken during the summer months of 1934 and 1935. It is probable that this will be a 5,000,000 gallon a day, separate sludge digestion, sprinkling filter plant.

All of the above work is being done by the County Commission of Jefferson County. W. D. Bishop, president; W. E. Corning, R. E. Smith, and H. H. Hendon.

LOUISIANA GAS DEVELOPMENT AND POSSIBILITIES

By

M. E. Nash

Engineer Minerals Division
Louisiana State Conservation Department

THE first record of natural gas in Louisiana is found in Humboldt's "Travels in New Spain" written in 1804. An artesian well drilled at Shreveport in 1888 encountered gas which was used for lighting purposes for a number of years. In 1909 gas was discovered in what is now the Great Monroe Gas Field, but a really commercial well was not completed until 1916. There was no market for natural gas and no likelihood of one being developed until the carbon black operators were attracted to the area in 1918. That year was really the beginning of the Natural Gas Industry in Louisiana and today it is one of the leading producers.

North Louisiana now supplies the present output of the State. The major producing fields are Monroe, Richland, Sugar Creek, Rodessa, Waskom, and Pine Island. Innumerable smaller fields are scattered throughout the area. While the Monroe field is the oldest producing field in Louisiana, it will, no doubt, still produce more gas than any other field. It comprises approximately 227,000 acres. At the close of 1931 the field had produced a total of 1,302,000,000,000 cubic feet. According to the 1932 regauge there were 850 producing wells in this field, with a total open flow capacity of 4,500,000,000 cubic feet daily.

The Richland Gas Field, discovered in 1926, has been the second largest gas field in the State. While nothing to compare with the Monroe Field, with an area of 27,000 acres, it has contributed far more than its quota to the industry. There are 239 producing wells capable of delivering 3,340,029,000 cubic feet daily. Much of the reserve of the Richland Field was destroyed because of numerous craters. A high rock pressure together with faulty workmanship on several wells caused excessive losses indicating an earlier depletion of the field unless new interior wells are drilled.

Sugar Creek and Rodessa are the next outstanding fields in the State, and are very similar. Both are producing from the Trinity Horizon and both are exceedingly rich in gasoline, yielding approximately 1800 gallons of gasoline per million cubic feet of gas. Heavy withdrawals are not being made from these fields at present because of an insufficiency of gasoline plant capacity. Neither have the limits of the fields been defined. Sugar Creek is producing from a depth of 4300 to 4400 feet and Rodessa is producing from 5600 to 5700 feet.

While many of the lesser outstanding fields of North Louisiana are still capable of producing gas, they cannot be looked upon as a source of supply for any length of time, because the heavy withdrawals made upon them for the past several years have had a telling effect, which is in evidence by the number of wells abandoned during 1932.

Production for all fields in Louisiana during 1932 amounted to 194,000,000,000 cubic feet as against 222,000,000,000 cubic feet for 1931, a decline of 14.6 per cent. The greater part of the decrease may be attributed to the slump in carbon black production, for but 40,000,000,000 cubic feet were used in 1932 as against 51,000,000,000 cubic feet in 1931. Also, the discovery of the New Jackson, Mississippi, Gas Field has helped to lessen the load on Louisiana. Approximately 131,000,000,000 cubic feet of gas were put into pipe lines and transported to Texas, Missouri, Arkansas, Alabama and Tennessee for industrial and domestic consumption.

Gauging a Monster Gas Well in Louisiana

Since the production and transportation of natural gas became such an important spoke in the wheels of progress, Louisiana has contributed by meter, a total of 2,302,000,000,000 cubic feet of gas. No doubt an equal amount has been recklessly wasted, because of ignorance as to its value. However, since the Louisiana Department of Conservation began to function, it has put into effect such laws and conservation measures that the situation is now under control, and an effort is made to prosecute all violators of these laws.

Possibility of Development

The area of Louisiana is 48,706 square miles or approximately 28,000,000 acres. Of this vast expanse, less than 500,000 acres are known to be productive of gas. Also, of the 64 Parishes which comprise the State, but 13 of these are productive of gas, and all in North Louisiana. There is much undeveloped territory in North Louisiana that is worthy of exploitation, and which will be developed as the need for additional supply increases. East and West Carroll, Madison, Franklin, Tensas, Concordia and Catahoula, all in East and Northeast Louisiana, are potential gas territories and have received considerable attention. Several "wildcat wells" are at the present time drilling at widely separated places in this area, and it is hoped that new discoveries will be made.

Central Louisiana from the Texas State line to the Mississippi State line is at present receiving the most attention. A strip or belt approximately 30 miles in width, running northeastwardly on a line from De Ridder, Louisiana, to Jackson, Mississippi, known as the Conroe Trend, is the center of leasing activities as well as drilling. Vast blocks of leases are being assembled by both major and independent operator, and, but little of the country is left unleased. Geophysical crews are working behind the leasing and of course much of the land now under lease will be dropped as its possibilities are disapproved by geophysics. Since this is the same producing horizon as at Jackson, Mississippi, it would not be unfair to this territory to expect several new gas discoveries along this trend.

Vernon, Beauregard, Rapides, Grant, Avoyelles and Concordia are all contained in this new investigation.

DEVELOPMENTS IN HIGHWAY MATERIALS

As road building technique has advanced in recent years, more attention has been given to the development and selection of materials. Three types and methods are discussed in the following abstract of an address on Recent Developments in the Use of Highway Materials by H. F. Clemmer, engineer of materials, District of Columbia, before the Purdue Road School, Purdue University:

1. The use of Temperature Resisting Cement in the construction of "cement mortar bound" roads. 2. The Use of Calcium Chloride for Maintenance and Stabilization of "low-cost" roads. 3. Effect of Temperature on the Early Strength of Concrete.

Cement Mortar Bound Surface

Temperature resisting cement, termed TRC, which is now being manufactured, is particularly adaptable for use in the construction of the cement mortar bound type of road surfaces. A layer of this special cement mortar is sandwiched between two courses of large crushed stone and the surface rolled until the mortar is worked through the stone. A seal coat of grout is broomed over the surface filling the voids between the faces of the stone and leaving a thin covering. In addition to a minimum of cracks in pavements so constructed with this cement it has ability to resist the effect of temperature.

Volume change tests show this cement to have practically the same coefficient of expansion as standard Portland cement and the same amount of shrinkage in the early stages due to hydration. It is slow in setting and requires a period of 96 days in which to gain a strength comparable to that of standard Portland cement in 28 days.

The method of constructing the cement mortar bound road permits a low unit cement content and reduces volume changes due to temperature and moisture conditions. This fact together with slow setting characteristics distributes the shrinkage stresses which probably accounts for the resistance to cracking offered by this cement.

Low Cost Roads

In the past few years highway activities have turned from the construction of high type roads to the development of secondary road systems. Where traffic has not warranted a costly road, low cost types have been developed. One of the most interesting types has been the sand clay roads in the South which under proper care and construction have provided a satisfactory surface.

Construction Requirements

The basic requirements for stability in low cost road construction, as suggested by the studies of the Bureau of Public Roads, are a graded granular material and a binder. It is the granular material or mineral aggregate which furnishes the structual strength of the road slab, and also the hardness of surface to resist the abrasive action of traffic. The binder consists of two parts; an inert filler and a cohesive cement. The silt particles which have practically no cohesive properties and are not apt to expand or shrink in appreciable amounts due to moisture changes, and which by themselves have little or no stability in the presence of water, form the filler in soil road slabs. In this capacity silt performs the very important function of "packing" in the void between the larger sand grains and preventing the rocking action or movement of these grains, which is destructive to the stability of the road. The finer clay particles and the colloids, the very finest material, furnish the cement or "glue" to bind the sand or gravel grains, properly choked by the inert silt particles, into a stable wear resisting untreated soil road surface.

The function of the sand particles and the silt filler is the same, regardless of the type of cementing agent and is well understood by the road building fraternity. The manner in which the soil "glue" functions, however, may not be so generally understood, because it is the moisture film between the minute soil particles and not the particles themselves which comprise the true binder. The racing course at Daytona Beach, which accommodates speeds requiring the highest stability and abrasive resistance offers an illustration of the unbelievable binding power supplied by moisture. This course consists of perfectly cohesion-less fine grained particles cemented together temporarily by surface tension furnished by interstitial sea water film. Instead, therefore, of the soil "glue" having a distinct degree of cohesion as is our general conception of a glue or cement, it may be enormously high or practically zero, depending upon the extent to which the soil is filled with moisture.

Calcium Chloride Treatment

From the foregoing the importance of maintaining moisture in the soil may be realized. Should the clay or binding medium be allowed to dry out, the surface tension between the individual particles is destroyed. However, if material such as calcium chloride, possessing deliquescent properties, is properly incorporated with the binder it will serve to supply sufficient moisture to maintain this cohesive ability of the binder and thus aid in maintaining a road of maximum stability.

An explanation of the action of calcium chloride, when used in the treatment of gravel roads, during and following rains is of interest. During prolonged dry spells the solution of cal-

Constructing a Cement Bound Road

Photos courtesy Medusa Portland Cement Co.

Temperature Resisting Cement Bound Macadam Pavement

Top—Spreading the "sandwich" mortar

Bottom—General view of construction operations; spreading, rolling and finishing

cium chloride present in the soil due to previous application is drawn to the surface. When a rain occurs, the first water absorbed, serves to carry this solution below the surface. When the surface material becomes saturated subsequent rainfall is shed into the ditches. Following the rainfall, evaporation of the surface water takes place. As the moisture in the top layer of the road evaporates it is replaced by the solution of calcium chloride, which has been stored below the surface during the rain. This solution is brought to the top by the capillary action of the soil. Evaporation takes place until a concentration is reached at which the calcium chloride solution will no longer lose moisture under the existing humidity and temperature conditions. If maintenance manipulation is carried on while the calcium chloride solution is near the surface, the material is dissipated; however, if manipulation is carried on during or immediately after a rain, while the calcium chloride solution is some depth below the surface, the road surface may be put in the best possible condition without the loss of calcium chloride.

Early-Strength Tests

From a study of field tests of concrete as a check on the quality of the concrete for the purpose of determining when sufficient strength has developed in the concrete to permit opening of the pavement to traffic, the effect of varying temperatures on both high-early-strength and standard Portland cement concretes was found to be most important. Tests were made on several brands of both high-early-strength and standard Portland cements with and without calcium chloride incorporated in the mix. It was thought that standard Portland cement with calcium chloride as an accelerator might prove as satisfactory and more economical than the use of high-early-strength cement. It was also of interest to determine the value of calcium chloride with high-early-strength cement in overcoming the effect of low temperatures during setting of the concrete. Four different mixes were subjected to varying temperatures, as might be encountered in construction work. A knowledge of the behavior of these different mixes at various temperatures is necessary for the engineer to specify either a high-early-strength or standard Portland cement with or without admixtures in any particular case and to know which mix is best, why it is best, and the approximate strengths to expect from the particular mix at the early ages.

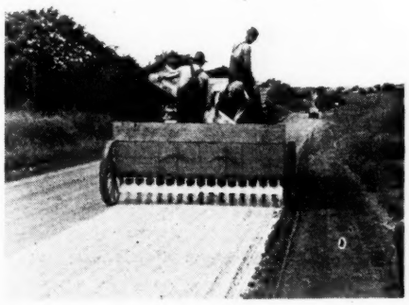
High-early-strength cement is particularly recommended for use at intersections and for the base construction of bituminous pavements to obtain early-strength concrete so as to permit the earliest possible opening of the pavement to traffic.

Recommendations

A summary of these tests would lead to the following recommendations: (The prices quoted for high-early-strength cement in the District of Columbia are at present but little more than for standard Portland cement, which fact enters into consideration.)

1. At 70 degrees F. or above the use of high-early-strength cement without calcium chloride or standard Portland cement with 1½ per cent calcium chloride.

2. At 60 degrees F. or below the use of high-early-strength cement with 1½ per cent calcium chloride, or standard Portland cement increased by one bag cement per cubic yard with 1½ per cent calcium chloride. (The calcium chloride is added in per cent by weight of cement.) The use of the same brand of cement rather than changing to a high early strength cement sometimes is preferable, in order to maintain a uniform appearance of the concrete.



Treatment of Sand Clay or Gravel Roads With Calcium Chloride

Right—Spreading the calcium chloride. Lower left—Before treating with grader going 10 miles an hour dust clouds create dangerous traffic hazard

Lower right—After the road has been treated with calcium chloride it conserves moisture preventing the clay or binding medium from drying out

PRIVATE BUILDING INCREASES

$80,000,000 of Public and Private Construction Contracts Awarded in South in Four Months

A FEATURE of the contract news for April of definite encouragement is the marked increase in private building awards in the South. These are 60 per cent greater than they were in January of this year. Awards for general building projects in the South, including apartment houses and hotels, association and fraternal structures, bank and office buildings, churches, dwellings and stores, totaled $6,066,000 in the first four months of 1933, made up of monthly awards as follows: April, $1,937,000; March, $1,635,000; February $1,279,000 and January $1,215,000. In other words, awards of this character have shown in each month this year an increase as compared with awards for the preceding month. The importance of the upturn in this class of building work, all privately financed, and undertaken because of a genuine need for such structures, is indicated when it is considered that April awards represent a gain of $722,000, or nearly 60 per cent, as compared with awards in the first month of this year.

Included in the general building awards for April was $948,000 for new dwellings, the highest total in the classification. The steady increase in residential building this year is considered a very favorable sign, since it was this class of construction that led the forward movement that followed the deflation of 1920. In January contracts for dwellings totaled $500,000, declining slightly to $477,000 in February, and increasing sharply to $871,000 in March.

$80,000,000 of New Construction in Four Months

Contracts awarded for public and private construction, engineering and building projects in the sixteen Southern states during the first four months of 1933 amounted to $80,348,000, as compared with $88,994,000 for the corresponding period of the preceding year. April lettings, announced by the MANUFACTURERS RECORD *Daily Construction Bulletin*, totaled $14,789,000, as compared with awards of $18,697,000 in March, $27,390,000 in February, and $19,472,000 in January.

Road and Street Work

Road, street and paving work holds first place in contracts awarded during the first four months, totaling $28,201,000; the monthly awards being as follows: April, $4,667,000; March, $6,712,000; February, $8,751,000, and January $8,071,000. Failure of State legislatures in session this year to appropriate funds for carrying on road construction and maintenance, and of the Federal Government to add to the emergency Federal Aid appropriations, coupled with the diversion of automobile license fees and gasoline tax revenue to other than road building purposes, are among the factors responsible for the slackening in road building activities in the South. Survey work has been carried forward in near normal volume, so that in the event additional funds are made available, it will be possible for the States to push actual construction.

Public Buildings

Award of contracts for public buildings in the first four months of 1933, is second in value only to road, street and paving work. Such contracts aggregated $24,785,000, made up as follows: April, $5,583,000; March, $5,057,000; February, $8,341,000, and January, $5,804,000. Compared with figures for the corresponding months of last year, awards for public buildings are small, for, during the first few months of 1932 the Federal Government went forward with an ambitious building program, providing for the erection of costly structures of all types for Washington, D. C., and for post offices, courthouses, veterans' hospitals, and similar structures throughout the country. Of late, army housing projects and air corps training centers in various parts of the South, have featured the Federal building program. In some instances funds initially intended for Governmental building projects, have been diverted to finance reforestation employment, etc.

Industrial and Engineering Contracts

Awards for industrial and engineering projects in the South during the first four months of this year had a total valuation of $21,296,000, made up as follows: April, $2,602,000; March, $5,293,000; February, $9,019,000, and January, $4,382,000. The sharp decline in the value of awards for this class of work in April, as compared with preceding months, is due in large measure to the absence of dredging, levee, revetment and dike lettings, which figured so prominently during the past year.

Awards for sewers, drainage and waterworks amounted to $3,491,000 in the first four months of 1933. Meanwhile, many towns, cities and counties are negotiating for Reconstruction Finance Corporation funds for such projects.

New Industrial Plants

While there are few outstanding new industrial plants under way, awards for this class of construction, January to April inclusive, have a total value of $9,767,000, made up for the most part of a variety of small enterprises, with here and there a $500,000 oil refinery or expansion program of a large established industry.

Proposed Construction

Projected construction work in the South at the end of April amounted to $34,336,000 and for the four months ending April 30 totaled $170,880,000. Awards for some of these projects announced in the earlier months of 1933 have since been let but the carry over indicates that a substantial volume of industrial and building construction is in sight in the South as soon as plans are completed.

CONSTRUCTION ACTIVITY FOR APRIL, 1933

	Contracts Awarded	Contracts to be Awarded
General Building		
Apartment houses and hotels	$262,000	$205,000
Association and fraternal	15,000	170,000
Bank and office	273,000	195,000
Churches	140,000	370,000
Dwellings	948,000	970,000
Stores	299,000	203,000
	$1,937,000	**$2,113,000**
Public Buildings		
City, County, Government and State	$4,975,000	$1,308,000
Schools	608,000	1,176,000
	$5,583,000	**$2,484,000**
Roads, Streets and Paving	**$4,667,000**	**$8,848,000**
Industrial and Engineering Projects		
Dredging	.....	$25,000
Filling Stations, Garages, etc.	235,000	4,231,000
Industrial Plants	1,878,000	9,460,000
Levees, Revetments, Dikes, etc.	.....	4,630,000
Warehouses	35,000	130,000
Sewers, Drainage and Water Works	406,000	1,970,000
Miscellaneous Projects	48,000	445,000
	$2,602,000	**$20,891,000**
Total	**$14,789,000**	**$34,336,000**

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IRON, STEEL AND METAL MARKET

Developments in the steel industry during April were the most encouraging in several months. Increased orders carried production schedules close to 33 per cent of the country's mill capacity, or more than double the operation rate at the beginning of the month, estimated at 14 per cent. Increased operation schedules were followed by announcements of price advances. There is no tendency to force general increases but progress has been made in eliminating the unstabilizing practices of individual producers to quietly shade competitors' prices, and the policy of quoting prices with a view to booking business solely for the purpose of keeping mills operating at a rate higher than the general average will be abandoned. Leaders of the steel industry last month expressed views of tempered optimism on the outlook, the concensus of opinion being that the industry is enjoying more than seasonal improvement, with practically all major consuming outlets, with the exception of building, participating. Also, because of operating economies effected over the past year, executives visualize the approach of a profit era, since some of the large companies, at least, are able to make some profit at 35 to 40 per cent of capacity.

Price Trend Upward

Thus, with the growing demands for practically all iron and steel products, a decidedly stronger tone in prices, the stepping up of production in the automotive industry and with railroad buying promising to be appreciable in the second half of the year, provided the reorganization plans now under discussion in Washington carry through, there are good reasons for the change in sentiment among leaders in the industry. Buying is said to have been stimulated by Congressional inflationary measures leading to expectations of higher prices. Iron and steel scrap prices, advanced as much as 25 per cent. Pig iron prices increased 50 cents to $2.00 a ton. Price advances during April were confined to the lighter steel products, but indications are that heavier forms will be marked up shortly. Galvanized sheets advanced $2.00 a ton, and an advance in hot roll strips of the same proportions was noted, and finally rolled steel sheets advanced $2.00 to $3.00 per ton.

What is going to happen to prices is one of the leading topics in steel circles. In some districts and on some commodities predictions of price advances run as high as $6.00 a ton, and in particular apply to automotive steel for which the demand is best. Steelmakers hold that the advances are justified because the costs of various raw materials have risen. For the first time in months consumers are attempting to buy for a considerable period ahead, but generally producers are not encouraging such orders, which is taken to indicate that higher prices are in the making.

Increased Railroad Buying

Steel producers look for improvement in rail buying through increased traffic that will result as business and industry revive, and through Federal aid. Of late railroads have been active in negotiating exchange of scrap for rail. Apparently the rail lines contemplate a sweeping program for discarding obsolete equipment if satisfactory terms can be arranged.

Miscellaneous Demand Improves

The miscellaneous demand for steel—indicating the healthiest sort of improvement—has shown the most betterment lately. A few steel-making plants, particularly those producing lighter steel, such as tinplate, are operating at 100 per cent of capacity. The end of April the Trumbull plant of the Republic Steel Corporation, Warren, Ohio, placed 24 mills of its tinmill division in operation, whereas 19 mills have been in operation for the past month. With the starting of strip and sheet mills and open hearth furnaces, the schedule is the heaviest at the Trumbull plant in more than a year. On April 30 the Yorkville, Ohio, tin plant of the Wheeling Steel Corporation, went on a 100 per cent operating basis. W. W. Holloway, president of the company, declared that the company's plants were operating on about 35 per cent of capacity. At the end of last month it was estimated that Cleveland steel mills were operating at 41 per cent, the highest in two years.

Southern District More Active

The change for the better was seen in Birmingham industrial circles with the starting up of a blast furnace of the Republic Steel Corporation at Thomas, which warranted resumption of operations at the Raimund ore mine. The Alabama Clay Products Company plant at Bessemer stepped up operations to 60 per cent, indicating that cupola and other hot furnace work is stimulating the demand for fire brick. Delivery of pig iron during April showed an increase over preceding months, and in certain grades there is not a big stock of the material.

The National Cast Iron Pipe Company booked an order for 800 tons cast iron pipe from Mexico City. The Bessemer plant of the United States Pipe & Foundry Company started work last month on an order for 48-inch pipe. National Cast Iron Pipe Company, Tarrant, Ala., started delivery on its share of a St. Louis order distributed in the district, 970 tons of 20-inch pipe being produced. Other parts of the St. Louis order went to the American Cast Iron Pipe Company for 1900 tons of 12-inch and 16-inch pipe, and to the McWane Cast Iron Pipe Company for 200 tons of 6-inch and 8-inch pipe.

Hardie-Tynes Mfg. Co., Birmingham, Ala., has completed shipment of the emergency and regulating gates for the Owyhee project at Dunaway, Oregon, for the U. S. Bureau of Reclamation. Total shipping weight approximately 800,000 pounds, for which 12 freight cars were required for transporting to its destination. More work of even greater importance is now going through the Hardie-Tynes shops.

The Sloss-Sheffield Steel & Iron Company may put one furnace into production shortly.

Iron and Steel Institute Meets May 25

At the annual meeting of the American Iron and Steel Institute, at the Hotel Commodore in New York City on May 25, an innovation will be made in the program, in that one session of the day will be devoted exclusively to a discussion of economic problems of the steel industry.

At the morning session Charles M. Schwab, chairman of the Institute, will make the opening address, followed by Francis H. Sisson, vice president of the Guaranty Trust Company of New York, who speaks on the financial situation and its relation to business recovery. Charles F. Kettering, president of the General Motors Research Corporation, will speak on the use of research in industrial and commercial programs. The session will close with an address by Robert P. Lamont, president of the Institute.

At the afternoon session three technical papers, each dealing with important production problems, will be presented by the following: H. G. Marsh, Carnegie Steel Co., Pittsburgh; Dr. Anson Hayes, The American Rolling Mill Co., Middletown, Ohio, and E. F. Entwisle, Bethlehem Steel Co., Bethlehem, Pa.

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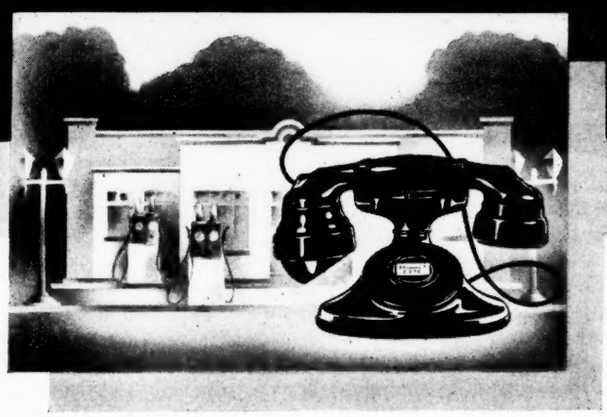

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Atlantic follows a policy of conservative expansion. Since 1929 it has opened many new sales territories, doubled the number of its service stations, increased its dealerships proportionately. Profits for 1932 were more than 2½ times those for 1931.

Long Distance is a forceful factor in carrying out every feature of Atlantic's policy. It allows flexible control over all sales units, from Maine to Florida . . . gives valuable personal contact between headquarters officials and large distributors and commercial buyers . . . is used to dispatch the company's large fleet of tankers from world ports . . . brings the far-flung refineries close to the home office.

Present business conditions make Long Distance more valuable than ever as an *action-getter* and *money-saver*. Your local Bell Company will gladly help you to develop effective and economic use of this modern service. No obligation, of course. *Just call your Bell Telephone Business Office.*

TYPICAL STATION-TO-STATION RATES

From	*To*	*Daytime*	7:00 P. M.	8:30 P. M.
Boston	New Haven	$ .70	$ .60	$ .40
Chicago	St. Louis	1.25	1.10	.75
Philadelphia	Savannah	2.55	2.10	1.40
Detroit	Denver	4.25	3.50	2.50
San Francisco	Atlanta	7.75	6.25	4.50

Where the charge is 50 cents or more, a federal tax applies as follows: $.50 to $.99, tax 10 cents. . . . $1.00 to $1.99, tax 15 cents. . . . $2.00 or more, tax 20 cents.

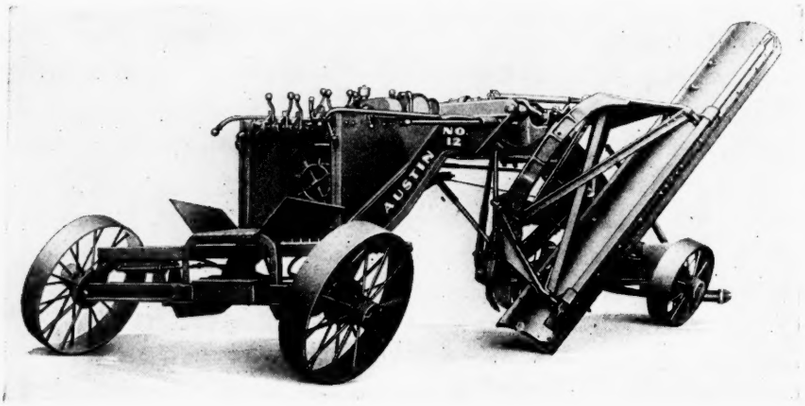
GOOD ROADS AND MOTOR TRANSPORT

New Motor Graders

Two new motor graders, Models 77 and 12, have been developed by the Austin-Western Road Machinery Company, Chicago, Ill. Model 77, noted for its traction, range of speed, blade pressure, ease of control and adaptability, is powered with a six-cylinder motor that develops 53 horsepower at governed speed, and has six speeds forward, ranging from 1.39 to 13 m.p.h. Full dual drive puts all power to work behind the blade, it is claimed, and spinning or skidding wheel power losses are entirely eliminated. The front axle, 80 inches wide, resists side draft, increases stability and renders the machine easier to handle, while the wide tread permits the grader to do ditch work and enables one wheel to move along the top of the road, with the opposite wheel in the ditch tracking with the rear drivers. The machine is also built with single drive. All "77" motor graders may be furnished with either hand or hydraulic (oil) power controls, and the dual drive machine may be furnished with Diesel motor.

The new Austin No. 12 (Hydraulic) Power Controlled Grader is described as a "super-rugged unit of simplified, improved design." Having a 12-foot blade with railroad rail reinforcement, the grader cuts 18 inches below ground level, has a high reach of 7 feet, 10 inches, and may be raised into high lift position in less than 3½ minutes. The newly developed power control provides a fast, smooth and easy means of leaning wheels, shifting rear axle and operating blade, pole steer and scarifier. A rotary pump actuates the rams that work within double acting, high pressure cylinders.

Austin Power Controlled Grader



High Motor Taxes Reduce Sales Volume

The tendency of legislators to depend more and more upon gasoline taxes to offset deficiencies in other revenues has a serious effect upon the petroleum and automotive industries, points out the Standard Oil Company of New Jersey. In some States the theory on which gasoline tax was accepted, viz., that the automobile owner should pay for new highways, has been abandoned. There are now States without plans for highway construction which are increasing the gasoline tax and absorbing the entire proceeds into various funds. The Federal Government in levying a gasoline and motor oil sales tax has entered what was formerly regarded as an exclusive field of the States. The additional cost of motoring due to rising taxes has had a marked influence in reducing the sales of gasoline and oil.

$575,000,000 in Gas Taxes

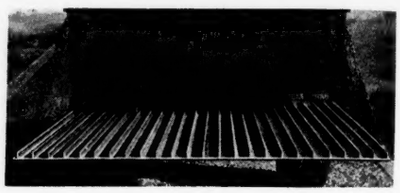
State gasoline and motor fuel taxes yielded $514,000,000 in 1932, and gasoline consumption declined 7.5 per cent from 1931. The total revenue was allocated as follows: To State highways, $301,788,000; to local roads, $94,074,000; to State and county road bond payments, $50,726,000; to city streets, $16,776,000; to cost of collection and administration, $2,833,000; and to other than highway purposes $47,941,000.

Adding the Federal gas tax for part of the year, the total revenue paid by motorists was in excess of $575,000,000, more than $50,000,000 of which was diverted to other uses than road improvements and maintenance.

Spreader With No Moving Parts

D. C. Elphinstone, Inc., Baltimore, Md., announces the Best Spreader for sand, slag, salt, calcium chloride, chips, gravel, cinders and stone. It consists of a series of troughs made of 14-gauge metal, the sides of which are 2 inches high, the combined bottoms forming a flat, fan-shaped surface spreading the aggregate from the tail end of a dump wagon to a uniform width of 9 feet. The front end, which attaches to the truck, is 6 feet wide and the discharge end is 8½ feet wide. Length is 2½ feet and the weight is 235 pounds, including two 5-foot back-end hanging chains, by which the spread is suspended from the rear of the truck. In operation, as the body is elevated and the tail gate opened, material flows by gravity down the troughs and is discharged in a smooth sheet. The number of pounds of material per square yard of road surface to be spread is governed by the width of the tail gate opening and speed of the truck. The Best Spreader has no moving parts and may be quickly installed by two men.

Best Spreader

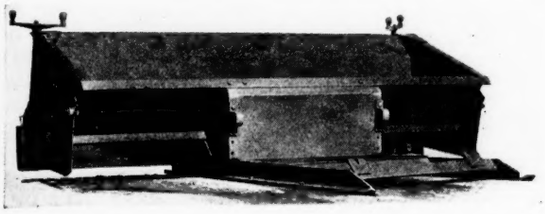


$551,000 Toll Bridge Revenue

Twelve state-owned toll bridges in Kentucky produced total revenue in 1932 of $551,377, according to Ben Johnson, chairman of the Kentucky Highway Commission, Frankfort, under whose supervision the bridges are operated. Funds collected for the use of the bridges are used to retire bonds which were issued to finance construction. The largest total collection from a single bridge was yielded by the span at Ashland, which produced an income of $99,377. Toll collections have been satisfactory in view of diminished traffic conditions, and it is stated that receipts have been sufficient to meet interest and sinking fund charges. Only a few of the bridges have been in operation a full year and when they have produced sufficient revenue to pay off the bonds the bridges will be free to traffic.

Before You Buy . . . . .

Galion "Chief" 6-cylinder Motor Roller—Hydraulic Steering and Hydraulic Operated Scarifier.

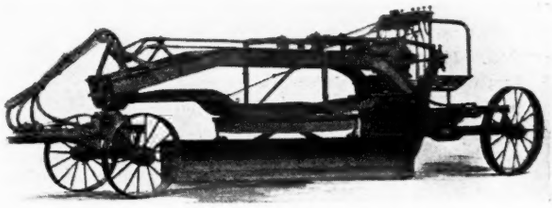


Galion Asphalt Spreader. Also Stone, Mulch, Slag and Concrete Spreaders.

SEND FOR DETAILS

Investigate these Galion developments in Road Machinery. Talk it over with your nearest Galion dealer—there is one in your vicinity. He'll be glad to give courteous and prompt response to your requirements.

Galion Hydraulic Operated Motor Patrol Grader with McCormick-Deering Power Unit.



Galion No. 10 Leaning Wheel Grader Equipped with Hydraulic Operation.

The Galion Iron Works & Mfg. Co.
Galion Ohio

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Motor Trucks
Buses
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SHOVELS-CRANES-CLAMSHELLS-DRAGLINES
3-4 yd., 1 yd., 1 1-4 yd. and 1 1-2 yd.
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Division Lima Locomotive Works, Incorporated
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Mascot Chatts

ASPHALTIC ROADWAY GRAVEL

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ASPHALT FILLER DUST

American Limestone Company
Knoxville Tennessee

EQUIPMENT

NEW AND IMPROVED

Sturtevant Speed Heater-Humidifiers

For supplying humidity to areas where it is needed in the industrial field, B. F. Sturtevant Company, Hyde Park, Boston, Mass., has developed a unit which is receiving immediate response, it is said. Developed with the thought that leather and wool houses would be the immediate outlet, the new device is said to have met with such favor that various other installations have been made. This unit, known as the Sturtevant Speed Heater-Humidifier, is claimed to produce and maintain the correct amount of humidity and at the same time furnish the desired temperature throughout the area it is needed. It may be used wherever conditions demand a predetermined amount of moisture in the air at all times, whether in a working or storage area.

Colonial Design Elevated Tank

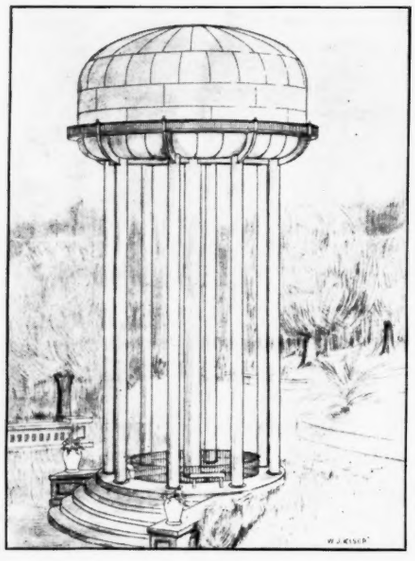
The Chicago Bridge & Iron Works, Chicago, Ill., continue their installations of interesting and artistic water towers in the Southern states. There is shown with this a sketch of a new Colonial tank, which has a capacity of 400,000 gallons, built for the City of Tallahassee, Florida.

The structure departs most radically from standard designs in the tower. It consists of eight 33 inch diameter tubular columns placed in a 41 foot 6 inch diameter circle. The radial girders of the tank bottom are supported on the inner end by the four foot diameter riser and cantilevered over the cylindrical columns.

There is a mirror pool at the bottom of slightly over 30 feet in diameter and an ornamental railing encircles it.

It is planned to install flood lights on the balcony to illuminate the upper part of the tank shell at night. There will be four dome sprays in the mirror pool, illuminated at night by colored lights from below.

400,000 Gallon Capacity Water Tower at Tallahassee, Fla.



Economical Portable Compressor

Adapting recognized advantages of two-stage stationary compressors and making them usable in portable units, the Ingersoll-Rand Company, 11 Broadway, New York, has developed a portable air compressor of high efficiency. In the new machine the compressor is a two-stage, air-cooled unit, having two low-pressure cylinders arranged in a V, and between them, in vertical position, a high-pressure cylinder. Temperature of the air at the compressor outlet is said to be 200 degrees lower than that from water-cooled, single-stage machines. Power is supplied by a Waukesha four-cylinder gasoline engine of the heavy duty type with patented "Full-Power" combustion chamber, designed expressly for this service. A clutch for easy starting is interposed between the engine and compressor. The machine is made in four sizes, and is obtainable in a variety of mountings.

Hydrogen-Electric Furnace

A special type of hydrogen-electric welding furnace has been installed by the Bundy Tubing Company, Detroit. It is an automatic continuous welding process that may be used in the assembly of virtually any product made of iron or steel. Parts to be welded are snugly fitted or spot welded. Copper wire or paste is applied at the joints and the assemblies loaded on cars, which are automatically elevated into the hydrogen filled heating zone of the furnace. The parts are brought to a maximum temperature of 2100 degrees which melts the copper into the seams producing an integral copper-iron alloy bond between the parts. This furnace is capable of handling 1000 pieces of a dozen or more welds each every four minutes.

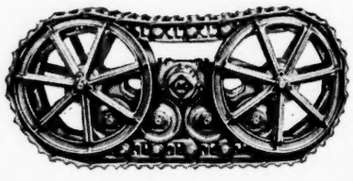
Spherical Tank By Arc Welding

The installation of a new type of mixing tank for gas, said to be the first of its kind, was recently completed at Shrewsbury for the St. Louis County Gas Company, St. Louis, and Webster Groves, Mo. The tank, known as the Hortonsphere, is 45 feet in diameter with a rated capacity of 162,000 cubic feet of gas at 50 pounds working pressure per square inch. It was fabricated and arc welded in the field by the Chicago Bridge and Iron Works, Chicago, Ill., which handled the welding with equipment manufactured by The Lincoln Electric Company, Cleveland, Ohio. Shell plates were dished and edges prepared in the shop, after which the plates were match marked and shipped to the field. They were hoisted in position by a derrick and first tack welded, then all seams were closed. On a Hortonsphere of this size there is a total of approximately 1256 lineal feet of seam and 5024 feet of welding.

Drop-Forged Steel Wagon Track

Built and designed similarly to the track assembly of the Allis-Chalmers Model "L" tractor, a new drop-forged steel wagon track with a net loading capacity of 15 to 20 tons has been announced by the Allis-Chalmers Manufacturing Company, Milwaukee, Wis. Essential principles of this new track are: (1) load carrying track wheels rolling on the rail of an endless track; (2) idlers, or end wheels (non-weight carrying) for the purpose of picking up the track in the rear and depositing it in the correct position at the front to insure uninterrupted rolling over same by the first track wheel, resulting in continual smoothness of action for the entire unit. Overall dimensions of the unit are: Length, 80 inches; height, 36 inches; width, 19½ inches, and width of shoe 18 inches. Weight of the trucks are 5252 pounds. The diameter of the axle bushings may be changed to fit any track wagon axle now on the market.

Track Assembly



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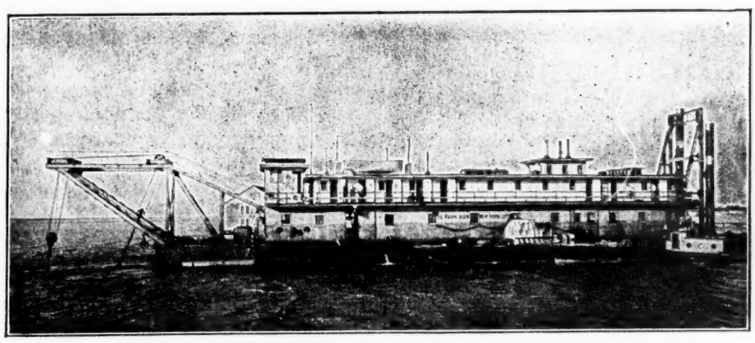
FILLING, LAND RECLAMATION, CANALS, PORT WORKS

RIVER AND HARBOR IMPROVEMENTS—DEEP WATERWAYS AND SHIP CHANNELS



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A Better Atmosphere

Competent observers consider that business from now on should mark an upward course. The small business, the decentralized industry, unquestionably, is facing a brighter future than for a long time.

In this situation sound commercial banking must take an important part.

We are prepared to render industry every reasonable service

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Capital and Surplus $1,350,000.00
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FINANCIAL NEWS

Deposit Insurance

The Bank Bill is still awaiting passage when this is written. Its full provisions are not known, but one of particular interest is that which guarantees 100 per cent deposits of $10,000 in amount, and over that sum carries a guarantee of 75 per cent diminishing to 50 per cent on very large deposits. Views of conservative bankers, recalling the arguments of bygone days for and against guarantee of bank deposits, have undergone changes in the light of later events. It is understood that the bill will provide that the Treasury shall put up $150,000,000 for the capital stock of a new Deposit Insurance Corporation. Federal Reserve District banks will subscribe an equal sum and this will be called for whenever losses of the Corporation exhaust the part subscribed by the government. In addition, there will be a subscription by member banks of the Federal Reserve System to an amount equal to one-half of one per cent of their outstanding time and demand deposits. This is a rough outline of a major provision of the bill.

Recognizing all the sound arguments against guarantees of bank deposits, probably nothing will contribute more directly and rapidly to a return of confidence on the part of a mistrustful public. As a matter of fact, it is quite likely that a great deal of the distress caused by closed banks could have been saved if some plan of this kind could have been worked out on the part of the Government, instead of having 15 per cent of the country's deposits impounded today with its consequent distress to such a large part of the population. Later news indicates the deposit guarantee feature of the bill may be deferred for a year, according to agreement between the President and those having the bill in charge.

More Currency Unnecessary

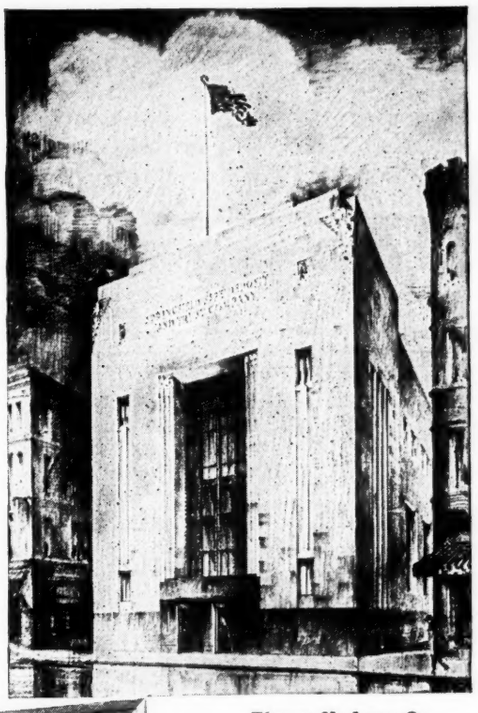
Mr. John M. Miller, Jr., one of the outstanding bankers of the South, President of the First & Merchants National Bank of Richmond, Virginia, is opposed to the policy of inflation and says "it is more business we need and not more circulating medium." He adds "if the dollar is cheapened it is likely to bring about difficulties so serious as to require years to overcome." Mr. Miller's views were asked by Senator Townsend of the Senate Banking and Currency Committee. Mr. Miller strongly urges that the Sherman Anti-trust law be revised. He regards it as antiquated. He stresses the evils of over-production and price-cutting as being generally destructive and resulting in failures and demoralization to employment of labor.

Two Sides

The Guaranty Trust Company presents in its monthly circular the side of the man with a fixed income as one of the sufferers from an inflation program. This is true as to bondholders, annuitants and insurance policyholders, as well as others, insofar as they may be investors without other earning capacity. The super-annuated and infirm may suffer to some extent, but this class is small compared to the great mass of people who under a properly controlled plan of inflation will indubitably have wages where there are no wages now and increased incomes from businesses that today are running in the red. There are two sides to the question. We have not gotten very far in pursuing all the policies of the past and it is to be doubted that those in authority are

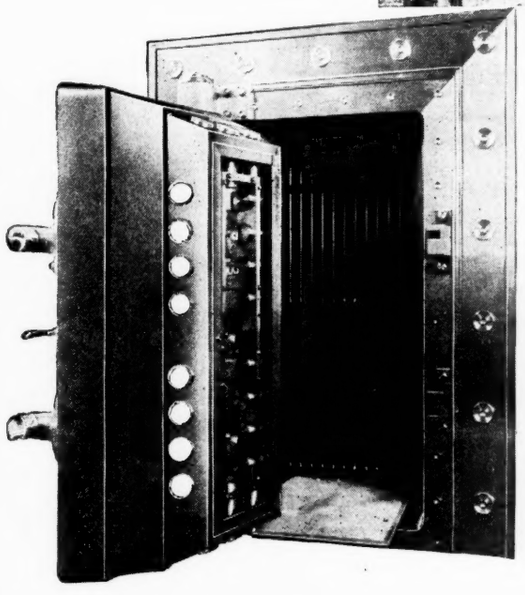
(*Continued on page* 34)

SPRINGFIELD SAFE DEPOSIT AND TRUST COMPANY *Installs* YORK VAULTS



THIS FINE old New England Banking Institution founded in 1885 selects YORK Vault equipment for its splendid new building. It is one of the most extensive vault installations in New England, comprising three heavy main entrances with provision for upwards of 8,000 safe deposit boxes.

Your bank, too, can enjoy this same skill and experience in vault construction which has made the name of YORK preeminent throughout the world. We invite you to consult with us regarding your requirements.



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It is worthy of note that vault equipment embodying the most modern developments and refinements can be purchased at this time at very advantageous prices. We suggest you write us for further details.

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CHICAGO

YORK VAULTS

CLEVELAND
WASHINGTON
LOS ANGELES
PITTSBURGH
MONTREAL

HONOLULU
PARIS
HAVANA
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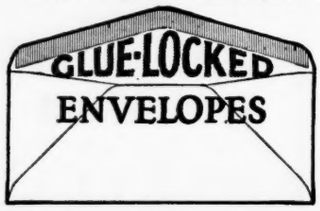
FIRE AND BURGLAR PROOF SAFES AND CHESTS

ENVELOPES
Direct from Manufacturer to Consumer



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—SERVICE—

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The Southern Hotel
BALTIMORE

BIRMINGHAM'S
MOST MODERN HOTEL
Radio and Circulating Ice Water in Every Room
250 ROOMS 250 BATHS
REDMONT HOTEL

Two Sides

(*Continued from page* 32)

prepared to plunge, without reserve, into a whirlpool of inflation without taking thought for proper safeguards. Realizing the danger, it is still reasonable to say that something was necessary to break the impasse that has existed for a long time.

More Capital Suggested

Jesse H. Jones, now chairman of the Reconstruction Finance Corporation, in a recent address proposed that "the best and most liquid banks be required to increase their capital structure by issuing preferred stock, to be taken either by present stockholders, or the Reconstruction Finance Corporation." His belief is, "it would build up the morale of our bankers and give them a sense of security which would encourage them to confidence and action." Also, "a billion dollars of added capital would expand banking facilities and bank credit in a multiplied form." He announced that the Reconstruction Finance Corporation has invested more than $50,000,000 in preferred stock in banks. The proposal may be listened to more eagerly as business improves, but at present bankers will hesitate to assume fixed charges unless there are sound loans in greater demand than at present.

Security Values and Building

The recent rise in securities values is most encouraging to business and individual investors. A representative group of common stocks have risen over 100 per cent since the low market of a year ago. The rise in commodity prices, which has accompanied the improvement in share prices, is meeting with increased buying, because people buy on a rising market. Tires, metals, rubber, coffee and a variety of commodities have shown appreciable increases. In this connection it is encouraging to note the marked increase in private building work, described on another page in this issue. This phase of building has been strikingly low for a year or two past. Prices of building material and of labor both are encouraging to the prospective builder. Probably not again for a long time will it be possible to do this work at such low rates.

Inflation Benefits

The Farm Bill, with its inflation riders, is well on its way to final passage. It may be a law when this is printed. Writers in Southern papers are discussing its possible benefits to the South. Higher priced cotton, if the bill works as intended, should add materially to the buying power of the entire South, albeit there will go with it a corresponding increase in the price of manufactured goods. One opponent announced, in objecting to the inflationary part of the Bill, he could not conceive of the reason for a man being better pleased with twice as much money when he could buy only the same amount of goods he was able to buy before with half the amount. This is not in accord with human experience. Relations between prices and money supply do not always work out in equally increasing ratio for one thing, and another is that most people would rather have control of an increased supply of money, provided it is good money, because it gives them not only the feeling of greater possession, but a wider choice in their purchases. This is not to say, however, that inflation, when the term is used broadly, does not carry possibilities of great evils.

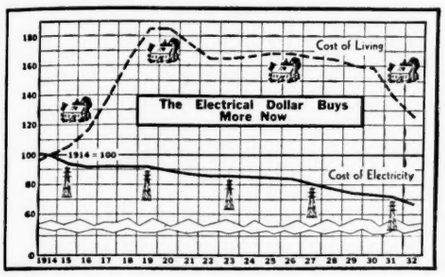
Worrying About Inflation

B. C. Forbes, the financial writer, prints an epigram: "Some people are worrying about our ability to control inflation. We certainly couldn't possibly make more of a mess of controlling inflation than we made of controlling deflation."

A Fair Question—"Why haven't Electric Rates come Down as much as the Cost of Living?"

ELECTRIC RATES have come down *more* than the cost of living, if the period since 1914 is considered. Electric domestic rates are 33% *lower* now, while the cost of living is still about 25% *higher*.

The decline in rates cannot be so sharp as the recent drop in living costs, because utility expenditures consist largely of charges which cannot be reduced. Such a charge is *interest* on money loaned by bondholders for construction. Another is *taxes*, which have increased twice as fast as revenue during the past two decades and which now take more than ten cents of each dollar of revenue.


Cost of Living
The Electrical Dollar Buys More Now
1914 = 100
Cost of Electricity
1914 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Rates per unit of use will continue to go down automatically as customers increase their use.

ASSOCIATED GAS & ELECTRIC SYSTEM

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PRODUCTS IN CURRENT USE OR DEMAND LOCATED FOR COMPANIES HAVING MANUFACTURING, SALES AND FINANCIAL FACILITIES.

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CROSS TIES
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PROTECT YOUR PROFITS

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Plants at: New Orleans; Winnfield, La.; Louisville, Miss; Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.

ITEMS OF INTEREST

VARIOUS PROPOSALS are under consideration for economic rehabilitation. In place of the 30-hour-week bill, a measure is being prepared for submission to Congress, which it is understood is having the thoughtful consideration of the President, providing a basis upon which industry may more clearly meet present day conditions. It contemplates possible changes in the anti-trust laws and the power to adjust prices through trade association agreements, the whole being in consonance with a nationwide scheme and the helpful cooperation of the Government. It may involve loans to industry from the Reconstruction Finance Corporation. A committee has been named by the National Association of Manufacturers to help in working out with Senators and the White House a plan that it is believed will meet with general approval.

The Washington Post, in commenting on it editorially, says, "it is not to be supposed that industrial leaders are enthusiastic about the idea of giving up their freedom, but industry would rather be coerced by an emergency board made up of its own directors than be strangled by arbitrary laws, to be crushed by inflation or to die by paralysis. At present it appears that an emergency industrial board may become necessary."

Some recommendations have gone so far as to include the recreation of a board similar to the War Industries Board, with powers equivalent to those given the Board that successfully operated in war times.

GREATER CONTROL AND REGULATION OF INDUSTRY by government is receiving attention in other countries besides America. The National Committee for the iron and steel industry of Great Britain proposes centralized control, emphasizing the need of control of production, and technical efficiency as well as the control of sales in both domestic and foreign markets.

In an address before the London Iron and Steel Industry, Mr. Charles Mitchell, Chairman of the Committee, said "the old individual idea of ownership must definitely go" in order to bring about the necessary degree of cooperation to "bring down the cost of production to a degree that would enable the industry to give the consumer what he demanded; and also to make it possible for the industry to be in a position to regain its rightful place in the world's markets."

The Japanese Diet recently approved a bill calling for the merger of all private and governmental iron and steel plants. Passage of the bill came as the climax to long agitation in Japan. It is not compulsory. One of the results is understood to be a recommendation of the Finance Minister that all companies concerned should be appraised at from 10 to 20 per cent less than their actual value in order to reduce the capitalization of the new merger corporation.

TRANSCONTINENTAL & WESTERN AIR, INC., reports that air express tonnage shows an increase of 547 per cent in March 1933, compared with March 1932, and an increase of 147 per cent in March compared with February of this year. One of the reasons given is the present hand-to-mouth buying policy of most stores and factories and the ability to replace stocks quickly by air shipment.

One thousand baby chicks flew 2000 miles to another continent between the time of their hatching and their first meal recently. They were shipped by General Air Express from the Pinebreeze Poultry Farm at Calahan, Florida, to Port of Spain, Trinidad in South America. Only 1 per cent loss resulted.

JAMES H. RAND, JR., President of Remington-Rand, Inc., in a statement recently released, stated: "The cure for the depression is restoration of a fair price level. Since the price level was broken down by gold attaining an abnormally high value, or purchasing power, and since we alone cannot reduce that value, we are left this alternative: We must reduce the amount of gold in the dollar in order to bring the dollar back to its normal purchasing power and raise our price level. The Committee for the Nation is convinced by months of research and study of this problem that no step short of devaluation of the dollar can produce this result."

DEVELOPMENT OF THE HOME WORKSHOP, where in the aggregate thousands of people are turning their spare time into profit by making articles for sale, has stimulated the market for machinery and tool makers. Reports have reached the National Committee on Wood Utilization of the Department of Commerce from industrial centers that many makers of small-type machinery and equipment for the home workshop are operating full time. The Delta Manufacturing Co., Milwaukee, one of the largest machinery concerns in this line has made an extensive addition to its plant.

Manufacturers of materials in different lines are catering to this new demand. The Weyerhaeuser Sales Co., St. Paul, Minn., has recently developed a miniature lumber yard, installed in show rooms of building material merchants. In a rack built for the purpose, short pieces of wood suitable for the home workshop are kept in stock. The consumption of lumber for the home workshop may be increased by 50,000,000 feet a year, if this market is properly developed. Manufacturers of paint, glues, hardware and other accessories, have developed a profitable trade.

The National Committee on Wood Utilization has furnished hundreds of detailed plans for the home workshop, under the title "You Can Make It For Profit." We are importing millions of dollars of products of foreign home workshops. Much of this trade may undoubtedly be diverted to American sources.

IN 1930 approximately 4 per cent of the total consumption of aluminum in the United States was employed in the building industry; in 1931, 6 per cent, and in 1932, 10 per cent.

A NEW HIGH SPEED LOCOMOTIVE, about 10 per cent more efficient than present types, has recently been developed for the German State Railways, according to a report to the Commerce Department. The increased efficiency is brought about chiefly by increasing the steam pressure from 235 pounds per square inch to 368 pounds. This is made possible through the use of special alloy steel without increasing the boiler weight.

AN AIRPORT, shaped like an eight-spoke wheel, 120 feet above the ground in the heart of London, is planned as the latest air landing device for metropolitan centers, according to a report to the Commerce Department. The cost estimated is 5,000,000 pounds. It will have eight giant runways, enabling planes to land in any wind. These runways will be illuminated at night and the lighting so arranged to shift automatically with changes of wind. Large buildings will support the airport at proper intervals. These will be used as warehouses and airplane hangars. Planes will be lowered into the hangars by the use of elevators.

ALL MAIN LINE PASSENGER TRAINS of The Chesapeake and Ohio Railway Company will have air conditioning which is expected to be completed by June 1 and will make this the first railroad in the world to have 100 per cent air conditioned through service.

Because of their known durability, economy and fire-proof qualities The Standard Pipe Line Co., Shreveport, La.; used 96,800 square feet Eternit Hexagonal Asbestos Cement Shingles on 48 Mill Cottages.

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Gentlemen: Please send me full information on Cabot's Creosote Shingle and Wood Stains.
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INDUSTRIAL NEWS

Glass Sand Plant Offered

D. H. Sencindiver, trustee, Winchester, Va., will offer for sale at public auction on May 19, at Gore in Frederick County, Virginia, the plant of the Eastern Silica & Chemical Corporation, including a quarry which is said to contain a practically inexhaustible supply of high grade glass sand.

Re-Acquires Minneapolis Plant

The Flour City Ornamental Iron Company, Minneapolis, Minn., has re-acquired business assets formerly held by the General Bronze Corporation of New York City in Minneapolis, and will operate the plant.

General Cable Expands Warehousing

To insure a sufficient supply of magnet wire for servicing its Middle Western trade, General Cable Corporation, New York City, announces a program for the expansion of warehousing facilities in Chicago.

Cincinnati Rex Distributor

The Blaisdell-Folz Equipment Company, 219 West Pearl Street, Cincinnati, Ohio, recently organized contractors' equipment firm, has been appointed representative of the Chain Belt Company in the Cincinnati territory for handling the complete line of Rex construction equipment, including pavers, building mixers, pumps, saw rigs, plaster and mortar mixers, cold patch mixers, Rex Moto-Mixers and Moto-Agitators. The Chain Belt Company, main offices at Milwaukee, Wis., also manufactures a complete line of Rex chains, transmission and conveying equipment, material handling systems and belt conveyors for various industries.

Chicago Bridge Lands Foreign Contract

The Chicago Bridge and Iron Works, Chicago, Ill., have been awarded contracts for tankage and floating roofs in connection with the Irak Petroleum Company's pipe line development in Palestine and in Syria, according to an announcement. Approximately 17,500 tons of steel will be used in the construction of thirty-six 93,000-barrel tanks and thirteen 30,000-barrel tanks, all of the former to be equipped with pontoon floating roofs.

Water Works Manufacturers Meeting

The Water Works Manufacturers Association, Inc., is to hold its annual convention June 12-16 at the Hotel Sherman, Chicago. A feature of the meeting will be an exhibit contest similar to the one held so successfully at Memphis last year. It improved the quality of the displays, attracted greater attention and stimulated the spirit of competitive activity. Prizes will be offered for the best exhibits and to active members submitting the most intelligent reports about them. Headquarters of the Association are at 470 Fourth avenue, New York City.

Central Foundry Sales Manager

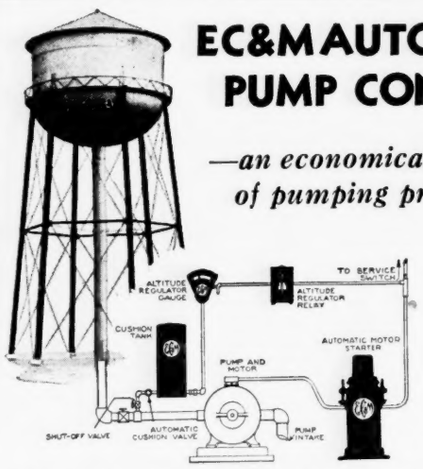
The Central Foundry Company announces the appointment of Raymond F. Garcia as General Manager of Sales, Universal Pipe Division, succeeding Leonard W. Saine, resigned. Mr. Garcia will make his headquarters at the general offices of the company at 420 Lexington avenue, New York City. Mr. Saine is now engaged in the manufacture of soap and sanitary products at Orlando, Fla.

Chemically Treated Wood

At the recent annual meeting of the Southern Pine Association, R. M. Morriss, of the American Lumber and Treating Corporation, Chicago, presented a paper on "Chemically Treated Wood and How It Can Be Profitably Adopted by the Lumber Manufacturers." While pointing out the economy of using treated forest products, he would have the treatment become part of the lumber manufacturing operation and the marketing of the treated lumber under the jurisdiction of the lumber trade itself. Mr. Morriss told of the advantages of the "salt" treatment for wood, as shown by experimental tests and practical use and stated that from the wood preserving field comes the offer to meet the lumber manufacturer more than half way in this development.

In line with this announcement, a plant was recently erected at Crossett, Ark., as a part of the Crossett lumber operations.

(Continued on page 40)



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The Water Level in this 50-ft. Tank can be maintained within limits of 1 Foot

The above illustration represents the manner in which hundreds of pumping installations are economically operated by EC&M Automatic Pump Control. Other stations using 2 or more pumps are similarly controlled. Closer regulation than 1 ft. can be secured by using a regulator with a partial scale reading such as 25-50 ft. instead of 0-50 ft. as shown. Mail the coupon for complete information.

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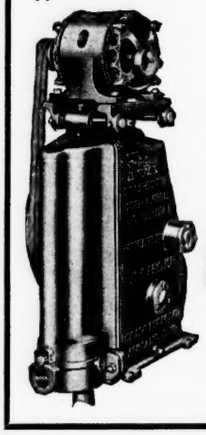

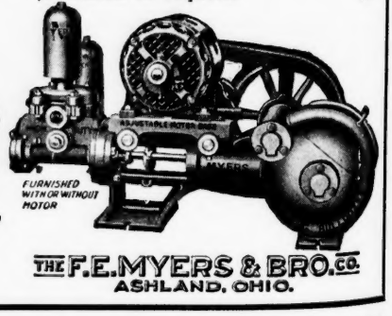

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Houston .....2919 Main Street	Chicago .....2106 Old Colony Bldg.	Boston .....1510 Consolidated Gas Bldg.
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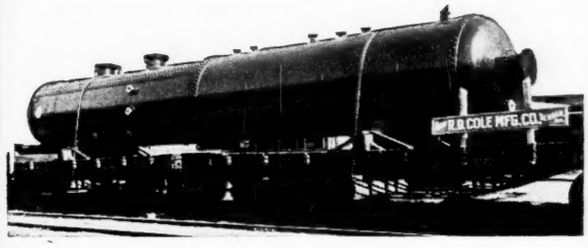

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Established 1854

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Chemically Treated Wood

(*Continued from page 38*)

which began the treatment of lumber with Wolman Salts about the middle of April. The Fordyce–Crossett Sales Co., 80 E. Jackson Boulevard, Chicago, is now prepared to offer to the lumber trade fabricated houses of one to five rooms built under a newly developed flexible method in panel construction and employing chemically treated Southern pine which is termite proof, fire retarding and decay resisting.

TRADE LITERATURE

Modern Electrical Conduit. — Steel and Tubes, Inc., Cleveland, Ohio, a unit of Republic Steel Corporation and one of the world's largest producers of electrically welded tubing, is distributing a booklet outlining the development of Steeltubes, a modern electrical conduit. It is made in seven sizes of tough open-hearth steel, formed from cold rolled strip, and is electrically welded.

Barium Carbonates.—The Grasselli Chemical Company, Inc., Cleveland, Ohio, has issued bulletin G-3, entitled "The Manufacture of Brick Using Barium Carbonate." The publication discusses the causes of scums, sources of sulfur compounds responsible for scum, preventing scum and comparative value of various barium compounds.

Industrial Power.—The International Harvester Company of America, Inc., Chicago, Ill., has issued a booklet under the title of "Push, Pull, Haul, Hoist With McCormick-Deering Industrial Power," illustrating and describing various types and uses of industrial tractors and power units, including the TracTracTor.

Modernistic Steel Ceilings.—The Edwards Manufacturing Company, Cincinnati, Ohio, is distributing a folder devoted to steel ceilings of modernistic and attractive designs.

Industrial Equipment Purchases.—In a nation-wide effort to stimulate purchases of industrial equipment, the Crane Company, Chicago, one of the world's largest manufacturers of valves and fittings, has been distributing some interesting booklets. One is entitled "Born of Retrenchment," and deals with waste resulting from inadequate repair, inadequate maintenance and inadequate replacement. Another headed "After 3 Years of Starvation Maintenance" explains a practical method by which to determine whether or not the piping equipment of a plant is as efficient and up to date as it should be.

Filtered Air.—"Filtered Air and Its Importance in Building Ventilation and Air Conditioning," is the title of a booklet issued by the American Filter Co., Inc., Louisville, Ky. The publication illustrates a number of important buildings in which American Air Filters are installed and lists some large industrial users. Factories of the company are at Louisville and Bradford, Pa., and Southern branch offices in Atlanta, Ga.; Baltimore, Md.; Birmingham, Ala.; Charlotte, N. C.; Chattanooga, Tenn.; Fort Worth, Tex.; Houston, Tex.; Huntington, W. Va.; Kansas City, Mo.; Memphis, Tenn.; Nashville, Tenn.; New Orleans, La.; San Antonio, Tex.; St. Louis, Mo.; Tulsa, Okla., and Washington, D. C.

Lunkenheimer Bronze Fittings.—The Lunkenheimer Company, Cincinnati, Ohio, is distributing a booklet devoted to Lunkenheimer bronze industrial aircraft and automotive fittings. Included are fittings made in accord with the U. S. Army and Navy standards for fuel and oil lines, pipe unions, union elbows, swing joints, swivel couplings, expansion joints and aircraft cocks.

Austin Graders.—Seven attractive bulletins illustrating and describing the new Austin graders made by the Austin-Western Road Machinery Company, Chicago, Ill., include: Austin No. 12 Hydraulic Control Grader; Austin No. 12 Hand Control Grader; Austin No. 10 Hydraulic Control Grader; Austin No. 10 Hand Control Grader; Austin No. 8 Grader; Austin Model 20 Single Drive Motor Grader and Austin Model 20 Full Dual Drive Motor Grader.

Arc Welded Joists.—The Modern Fireproof Construction Company, Philadelphia, Pa., is distributing a booklet on the Pawling System Arc Welded Steel Joist, described as offering maximum elasticity in structural design and fireproofing for all classes of buildings. Girders, columns, floors, ceilings and roofs can be fireproofed by the use of permanent steel forms made of Pawling metal lath and furring, plastered or poured solid with gypsum composition and plaster. This permits elasticity in design, speed in construction and economy.

"The Texaco Star."—The March-April issue of "The Texco Star," official publication of The Texas Company, New York, contains facts of especial interest to users of oil products. All editorials and most of the articles were personally prepared by R. C. Holmes, president of the company.

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Washed Sand and Gravel for Concrete Roads and Buildings
Filter Gravel, all sizes—Building Bricks

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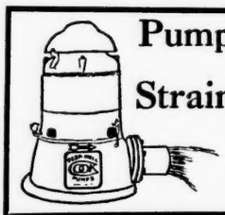

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GEORGIA BANKER—FARMER COOPERATION

By

W. S. Elliott

President
Georgia Bankers' Association
Canton, Ga.

FOR the past ten years certain far-sighted bankers in Georgia have devoted themselves, in cooperation with their farmer customers, to developing a Live-At-Home program among the farmers. The key proposition was to raise enough food and feed for man and beast on each farm and restrict the land planted to cotton and other strictly money crops to such acreage as might be available after the food and feed requirements were met. These points were stressed at meetings held from time to time under the auspices of the Georgia Bankers' Association and the State College of Agriculture. As a matter of fact, the excellent record established in Georgia Banker-Farmer cooperation during the past few years would have been impossible but for the excellent work of the College of Agriculture.

Early in 1930, at the annual convention of the Georgia Bankers' Association, a resolution was adopted constituting as a major activity of the Association the furtherance of a cooperative program between bankers and farmers looking to the following: (a) The production on each farm of necessary food and feed, with cotton and other cash crops as a clear surplus; (b) the promotion of farm financing methods directing the credit extended to farmers by the banks in such a way as would promote a well balanced farming program and make crop loans self-liquidating; (c) the creation of an Agricultural Board in each county under a plan recommended by the Georgia College of Agriculture and by the Agricultural Commission of the American Bankers' Association.

The plan outlined by the Association was supported enthusiastically by member banks throughout the State in close cooperation with County Agents and other representatives of the College of Agriculture. The State was divided into fifteen zones for the purpose of holding Banker-Farmer meetings to which bankers and farmers in every community were invited. The immediate result of these meetings was a large increase in the planting of food and feed crops throughout the State. This program was continued with marked success through 1931. The production of some of the principal feed crops increased during the two-year period as follows: corn, 2,500,000 bushels; wheat, 430,000 bushels; oats, 1,950,000 bushels; hay, 167,000 tons; syrup, 1,418,000 gallons; cow peas 926,000 bushels; sweet potatoes, 2,618,000 bushels. At the same time the production of cotton dropped from 1,593,000 bales in 1930 to 845,000 bales in 1932—a decrease of nearly 47 per cent. This reduction was affected without putting on a campaign for cotton reduction, and was due largely to increased acreage planted to food and feed crops as a result of the Banker-Farmer movement. What this reduction in cotton acreage has saved the Georgia farmer during this period of constantly decreasing cotton prices it is difficult to calculate, but the saving has been enormous.

Indicative of the results accomplished through one feature of the Live-At-Home program, girls' and women's clubs in one rural county canned more than 40,000 jars of fruits and vegetables in one year for home use. In another county the farmers find in a modern creamery a steady market for raw milk at prices comparable to those in the large cities. This creamery buys milk on the basis of butterfat content and its stringent requirements as to quality and cleanliness of raw milk is steadily raising the standard of milk in the contiguous territory. The bankers cooperate with the State College and wholesale buyers in operating railroad cars which pick up poultry in small towns throughout the State. The local banker assists in the financial end of the transaction.

Following the results of 1930 and 1931, it was found that the development of diversified farming in Georgia had been so successful that there were surpluses of food and feed crops in many communities. At the same time Georgia was shipping in annually from other states approximately $48,000,000 worth of food and feed. In 1932 there was added to the Banker-Farmer program the problem of finding markets for Georgia farm products. The supplemental program included the proper preparation of these products for marketing and processing some by canning, curing, etc. It was seen that the matter of contacting the consumers in the large centers was a serious one, and the State College of Agriculture placed a representative in each of the principal cities of the State to assist the farmer to dispose of his products. Bankers financed processing plants and made short loans to farmers for the purpose of moving their products to the newly found markets. At the zone meetings held last summer throughout the State, not only bankers and farmers were invited to attend but also business men, housewives, members of women's clubs and other civic organizations. A splendid spirit of cooperation was developed as a result of these meetings. While complete figures as to the result of this marketing program are not available as yet, figures from about 10 per cent of the counties in the State showed sales of Georgia farm products aggregating $1,319,000, directly traceable to this movement.

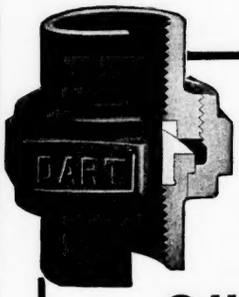
Not the least important factor in the agricultural program sponsored by the Georgia Bankers' Association is the County Agricultural Board, which consists of bankers, farmers and the County Agricultural Agent, who lend their efforts toward the betterment of agricultural conditions in the country, and in a definite and practical way, support the Banker-Farmer movement.

Factors in the Growth of Texas' Largest City

(*Continued from page* 17)

More than $23,000,000 has been spent by the Federal Government and the citizens of Houston and Harris County for improvement work, which resulted in the creation of a port here. Of this amount the citizens of the city and county contributed from their pockets approximately $11,000,000 for the construction of harbor facilities.

The development of the business of the port has been just as remarkable from the standpoint of results obtained, as it has been romantic from the standpoint of human achievement. In 1920, which was the first full year of the operation of the port, a total of 1,210,204 tons passed over the public wharves. During 1932 a total of 12,714,432 tons of shipping was handled. Houston has rapidly established herself as one of the great ports of the nation.



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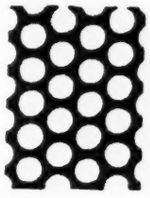

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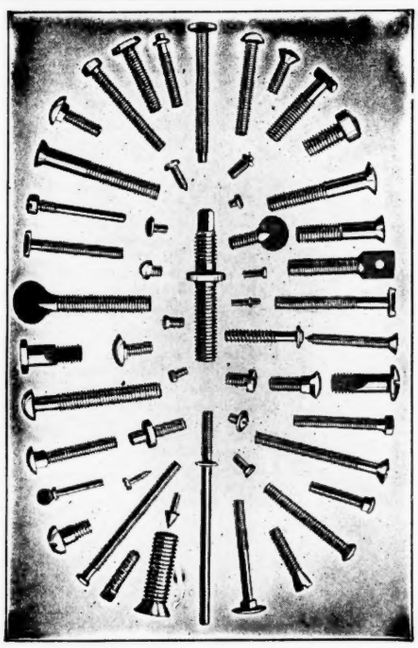

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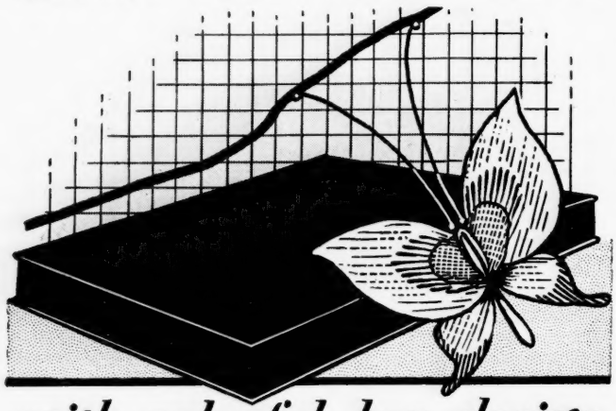

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ONE DOUBLE CLARK Band Saw Mill complete. All equipment, engines, cars, loaders, etc. Boilers and engines. Complete ice plants. Steam turbo generator units. Let us have your inquiry. Piedmont Engineering Co., Box 232, Charlottesville, Va.

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COTTON MILL
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8500 Spindles
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For Sale—3,000 A.—H. J. Ivey property, Beach Hill, Wilkinson County, Ga. Valuable tracts hardwood timber, heavy tonnage commercial clays. Trunkline R. R. siding on property, Oconee River frontage. Excellent mfg. site, also hunting and fishing preserve. Mrs. Louise Ivey Whitehurst, Jeffersonville, Ga.

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By the Insurance Department.
CONDENSED STATEMENT
SHOWING THE CONDITION OF THE

Fidelity & Guaranty Fire Corp.
Baltimore, Md.

DECEMBER 31, 1932

Bonds Amortized, Stocks Valued on Convention Plan.

Total income during the year	$3,254,304.90
Total disbursements during the year	3,477,461.26
Total admitted assets	4,787,920.56
Total liabilities except capital (including Contingency Reserve $250,000.00)	$3,077,644.03
Capital actually paid up in cash $1,000,000.00	
Surplus over all liabilities 710,276.53	
Surplus as to policy holders	1,710,276.53
Total liabilities	$4,787,920.56
Amount at risk in United States December 31, 1932	683,693,746.00
Risks written in Maryland during 1932	43,294,140.00
Premiums on Maryland business in 1932	197,407.37
Losses paid in Maryland in 1932	56,211.87
Losses incurred in Maryland in 1932	57,639.87

STATE OF MARYLAND
Office of the
STATE INSURANCE DEPARTMENT
Baltimore, Md., March 1, 1933.

I Hereby Certify, That the above is a true abstract taken from the Annual Statement of the FIDELITY AND GUARANTY FIRE CORP., BALTIMORE, MD., for the year ending December 31, 1932, now on file in this Department.

WILLIAM C. WALSH,
Insurance Commissioner.

PROPOSALS

Bids close May 31, 1933.

OFFICE OF THE ARCHITECT OF THE CAPITOL, WASHINGTON, D. C., May 2, 1933. SEALED BIDS will be opened in this office at 3:00 P. M., May 31, 1933, for changes in the Capitol Power Plant heating tunnel along First Street, Northeast, between East Capitol Street and C Street and in North Capitol Street, Washington, D. C. On or after May 8, 1933 drawings and specifications may be obtained at this office by intending bidders on deposit of check made payable to David Lynn, Architect of the Capitol, in the sum of $25.00 for each set, to insure its return in good condition. DAVID LYNN, Architect of the Capitol.

FOR SALE: GLASS SAND PLANT

The undersigned Trustee will, on Friday, May 19th, 1933, at 2 o'clock P. M., sell at public auction, at Gore, Frederick County, Va., the plant of the Eastern Silica & Chemical Corporation, including quarry of inexhaustible deposit of high grade glass sand. For particulars address

D. H. SENCINDIVER, Trustee, Winchester, Va.

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We are offering the best in Good used Equipment for Industrial plants of all kinds, from the Old Hickory Powder Plant as well as other plants purchased by us recently. Let us quote. Our prices are always money saving.

Just a few of our many offerings:

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1—300 H.P. Heine; 3—250 H.P. B. & W.; 4—600 H.P. Edgemoor; 1—250 H.P. Marine; 9—150 H.P. H. R. T.; 1—200 H.P. H. R. T.

ENGINES

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